

CALIFORNIA HIGH-SPEED TRAIN

Project Environmental Impact Report
/Environmental Impact Statement

SUPPLEMENTAL Palmdale to Los Angeles

Alternative Analysis Report Volume 2

March 2011



CALIFORNIA
High-Speed Rail Authority



U.S. Department of Transportation
Federal Railroad Administration



APPENDIX A - DETAILED EVALUATION TABLES

Table A-1 LAUS to Metrolink CMF Subsection – Evaluation Matrix

LAUS to Metrolink CMF Subsection – Evaluation Matrix				
Measurement Criteria	Alternative LAPT1 Tunnel from At-Grade LAUS (Carried Forward)	Alternative LAPT2 Tunnel from At-Grade or Elevated LAUS (Not Carried Forward)	Alternative LAPT3 Tunnel from At-Grade or Elevated LAUS (Carried Forward)	Alternative LAP1C Viaduct from At- Grade or Elevated LAUS (Carried Forward)
Design Objectives				
Journey time	2.7 minutes	3.5 minutes	2.3 minutes	3.9 minutes
	2.36 miles	2.69 miles	2.46 miles	2.72 miles
Intermodal Connections	Connections with Amtrak, Metrolink, Metro rail and bus at Los Angeles Union Station	Connections with Amtrak, Metrolink, Metro rail and bus at Los Angeles Union Station	Connections with Amtrak, Metrolink, Metro rail and bus at Los Angeles Union Station	Connections with Amtrak, Metrolink, Metro rail and bus at Los Angeles Union Station
Operating Costs	Higher because of tunnel ventilation	Higher because of tunnel ventilation	Higher because of tunnel ventilation	Lower
Capital Cost Factor	2.0	1.9	1.8	1.0
Land Use				
Transit Oriented Development (TOD) Potential	Currently, the Los Angeles Union Station is in operation and serves as a transfer location terminus for metro rail transportation through the Los Angeles Basin. The TOD potential is high as the terminus is located in dense industrial, public, and commercial uses.	Similar to LAPT1	Similar to LAPT1	Similar to LAPT1
Consistency with Other Planning	<p>All alternatives would be consistent with:</p> <ul style="list-style-type: none">Land uses in the Los Angeles City Community Plans: Central City, Silver Lake-Echo Park-Elysian Valley, Northeast Los Angeles, and Boyle Heights.the City of Los Angeles Central City Community Plan objectives to: keep downtown as the focal point of the regional mobility system accommodating internal access and mobility needs as well. Encourage rail connections that will serve the downtown traveler, and improve freeway movement and capacity adjacent to the Downtown area.the City of Los Angeles Central City North Community Plan objectives to: Develop a public transit system that improves mobility with convenient alternatives to automobile travel, encourage alternative modes of transportation to the use of single occupant vehicles (SOV) in order to reduce vehicular trips, and encourage the expansion of transit programs aimed at enhancing the mobility of senior citizens, disabled persons, and the transit-dependent population.the City of Los Angeles Boyle Heights Community Plan objectives to: Maximize the effectiveness of public transportation to meet the travel needs of transit-dependent residents, encourage alternate modes of travel and provide an integrated transport system, and a transportation system that is coordinated with land uses and which can accommodate the total travel needs of the Community.City of Los Angeles – Northeast Los Angeles Community Planning Area to: Develop an intermodal mass transportation plan to implement linkages to future mass transit service.City of Los Angeles – Los Angeles State Historic Park General Plan to: Explore opportunities to link pedestrian and cycling trails within the Park with neighborhood and regional transportation systems, including regional trails. <p>All alternatives would be inconsistent with:</p> <p>City of Los Angeles – Northeast Los Angeles Community Planning Area to: Require that any proposed development be designed to enhance and be compatible with adjacent development. However, the project team will work with the City and the stakeholders during the project development phase to minimize any incompatibilities with the adjacent developments.</p>			

LAUS to Metrolink CMF Subsection – Evaluation Matrix				
Measurement Criteria	Alternative LAPT1 Tunnel from At-Grade LAUS (Carried Forward)	Alternative LAPT2 Tunnel from At-Grade or Elevated LAUS (Not Carried Forward)	Alternative LAPT3 Tunnel from At-Grade or Elevated LAUS (Carried Forward)	Alternative LAP1C Viaduct from At- Grade or Elevated LAUS (Carried Forward)
Consistency with Other Planning (cont'd)	Alternative LAPT1 would be consistent with the land uses in the Los Angeles City Community Plans: Central City North This alternative would be compatible with planned developments under the following plans: <ul style="list-style-type: none">Los Angeles State Historic Park General Plan, although a tunnel portal will be placed near the east end of the park, resulting in temporary construction impacts.CRA/LA Clean Tech Corridor Plan This alternative would not be compatible with planned developments under the following plans: <ul style="list-style-type: none">Los Angeles River Revitalization Master Plan,Cornfield Arroyo Seco Specific Plan,	Alternative LAPT2 would be consistent with the land uses in the Los Angeles City Community Plans: Central City North. This alternative would be compatible with planned developments under the following plans: <ul style="list-style-type: none">Los Angeles State Historic Park General Plan, although a tunnel portal will be placed near the east end of the park, resulting in temporary construction impacts.CRA/LA Clean Tech Corridor Plan This alternative would not be compatible with planned developments under the following plans: <ul style="list-style-type: none">Los Angeles River Revitalization Master PlanCornfield Arroyo Seco Specific Plan	Alternative LAPT2 would be consistent with the land uses in the Los Angeles City Community Plans: Central City North. This alternative would be compatible with planned developments under the following plans: <ul style="list-style-type: none">Los Angeles State Historic Park General Plan, although a tunnel portal will be placed near the east end of the park, resulting in temporary construction impacts.CRA/LA Clean Tech Corridor Plan This alternative would not be compatible with planned developments under the following plans: <ul style="list-style-type: none">Los Angeles River Revitalization Master PlanCornfield Arroyo Seco Specific Plan	Alternative LAP1C would not be consistent with the land uses in the Los Angeles City Central City North Community Plan as the alignment will travel on a high (40'-50')viaduct very close to residential land uses This alternative would be compatible with planned developments under the following plans: <ul style="list-style-type: none">Los Angeles State Historic Park General PlanCRA/LA Clean Tech Corridor Plan This alternative would not be compatible with planned developments under the following plans: <ul style="list-style-type: none">Los Angeles River Revitalization Master PlanCornfield Arroyo Seco Specific Plan
Constructability				
Constructability	Bored tunnel beneath park, houses and Los Angeles River will require easements. Cut and cover beneath Spring Street will be less complex than beneath Broadway, but will require temporary bridges to maintain Spring Street traffic during construction.	Constructing the viaduct in a narrow strip of land between the Gold Line and Broadway, and constructing the cut and cover section of tunnel under Broadway will be complex. Once the Gold Line Yard development has been completed HST construction on this alignment would not be possible.	Bored tunnel beneath park, houses and Los Angeles River will require easements. Cut and cover beneath Spring Street will be less complex than beneath Broadway, but will require temporary bridges to maintain Spring Street traffic during construction.	Constructing the viaduct crossing over the Los Angeles River and the Metrolink tracks on a skew will be complex.
Disruption to Existing Railroad	Interface with existing railroads is limited to a small section immediately north of LAUS. Gold Line on viaduct emerging from LAUS would need to be diverted	Interface with existing railroads is limited to a small section immediately north of LAUS. Phasing of construction will be complex for the elevated LAUS option. Gold Line on viaduct emerging from LAUS would need to be diverted for the at-grade station option.	Interface with existing railroads is limited to a small section immediately north of LAUS. Phasing of construction will be complex for the elevated LAUS option. Gold Line on viaduct emerging from LAUS would need to be diverted for the at-grade station option.	Interface with existing railroads is limited to a small section immediately north of LAUS, the crossing near the Los Angeles River and running alongside the east bank tracks. Phasing of construction will be complex for the elevated LAUS option. Gold Line on viaduct emerging from LAUS would need to be diverted for the at-grade station option.

LAUS to Metrolink CMF Subsection – Evaluation Matrix				
Measurement Criteria	Alternative LAPT1 Tunnel from At-Grade LAUS (Carried Forward)	Alternative LAPT2 Tunnel from At-Grade or Elevated LAUS (Not Carried Forward)	Alternative LAPT3 Tunnel from At-Grade or Elevated LAUS (Carried Forward)	Alternative LAP1C Viaduct from At- Grade or Elevated LAUS (Carried Forward)
Disruption to and Relocation of Utilities	Most of this segment is in tunnel, thereby minimizing impact on utilities, except in trench segments transitioning to tunnel. Utilities within the right-of-way include: <ul style="list-style-type: none">• 2 x 20" high pressure (HP), 8 MP gas crossings• 2 x 20" oil crossings• 1 x 230 KV electrical crossing• 2 telecom crossings• 11 storm crossings, 2 over 7.5' wide• Los Angeles River crossing• 19 sewer crossings, one 48" diameter• 21 water crossings including 6 x 36" diameter and up• Elysian Reservoir crossing Of these utilities, crossings in trench areas include: 7 MP gas, one 20" oil, 3 storm, 8 sewer, and 3 water. There is also one longitudinal storm conflict in the trench area. Storm and sewer crossings in trench areas may require siphons or pump stations.	Most of this segment is in tunnel, thereby minimizing impact on utilities, except in trench segments transitioning to tunnel. Utilities within the right-of-way include: <ul style="list-style-type: none">• 1 HP, 2 MP gas crossings• 2 x 20" oil crossings• 1 x 230 KV electrical crossing• 2 telecom crossings, 1 longitudinal ½ mile• 7 storm crossings, one 7.5' wide• Los Angeles River crossing• 10 sewer crossings, one 48" diam, 1 longitudinal ¼ mile• 23 water crossings including 8 x 36" diameter and up• Elysian Reservoir crossing Of these utilities, crossings in trench areas include: 1 storm, 2 sewer, and 2 water. There is also one longitudinal conflict for each of telecom, storm, sewer, and water. Storm and sewer crossings in trench areas may require siphons or pump stations.	Most of this segment is in tunnel, thereby minimizing impact on utilities, except in trench segments transitioning to tunnel. Utilities within the right-of-way include: <ul style="list-style-type: none">• 2 x 20" HP, 9 MP gas crossings, 320 ft longitudinal MP• 1x 20" oil crossing• 1 telecom crossing• 6 storm crossings, 1 over 10' wide, 2 longitudinal (both under ¼ mile)• Los Angeles River crossing• 12 sewer crossings• 12 water crossings Of these utilities, crossings in trench areas include: 6 MP gas, 2 storm (one over 10' wide), 6 sewer, and 3 water. The longitudinal conflicts (both storm and one gas) lie within the trench area. Storm and sewer crossings in trench areas may require siphons or pump stations.	Most of this segment is elevated. The aerial foundation pile caps will have a significant impact on utilities, potentially conflicting with up to 40% of them. Utilities within the right-of-way include: <ul style="list-style-type: none">• 7 MP gas crossings, 650 feet longitudinal MP• 1 oil crossing• 230 KV electrical – 2 crossings, 790 ft longitudinal• 1 telecom crossing• 12 storm crossings; 3 channels over 5' wide• Los Angeles River crossing• 14 sewer crossings, 3 x 48" diam, ¼ mile longitudinal• 12 water crossings It has not yet been determined which of these storm and sewer crossings conflict with the foundation pile caps. These may require siphons or pump stations.
Disruption to Communities				
Displacements				
Residential Displacements	None	None	None	None
Business Displacement	17 – industrial parcels impacted 1 – non profit parcel impacted (Post Office Terminal Annex)	9 – industrial parcels impacted 1 – non profit parcel impacted (Post Office Terminal Annex)	16 – industrial parcels impacted 1 – non profit parcel impacted (Post Office Terminal Annex)	2 – commercial parcels impacted 36 – industrial parcels impacted 2 – non profit parcels impacted (Post Office Terminal Annex and Lincoln Heights Jail)
Properties with Access Affected	1- Industrial, 1 railway land	0	1 – railway land	1 – railway land
Local Traffic Effects near stations	See station evaluation (Los Angeles to Anaheim AA)	See station evaluation (Los Angeles to Anaheim AA)	See station evaluation (Los Angeles to Anaheim AA)	See station evaluation (Los Angeles to Anaheim AA)
Highway Grade Separations and Closures	1 grade separation (Main Street), 2 closures (local roads)	Temporary diversions on Broadway during construction, no others for elevated or at-grade LAUS	1 grade separation (Main Street), 2 closures (local roads), plus bridges over trench	None for elevated or at grade LAUS
Environmental Resources				
Biological Resources	The HST tunnel would be located below flood level of Los Angeles River, flooding risks would be avoided by flood-proofing techniques designed to protect ventilation and portal structures. There are no sensitive habitat areas within the LAUS area.	The HST tunnel would be located below flood level of Los Angeles River, flooding risks would be avoided by flood-proofing techniques designed to protect ventilation and portal structures. There are no sensitive habitat areas within the LAUS area.	The HST tunnel would be located below flood level of Los Angeles River, flooding risks would be avoided by flood-proofing techniques designed to protect ventilation and portal structures. There are no sensitive habitat areas within the LAUS area.	The HST Station and approaches would be at grade or elevated above the Los Angeles River floodplain. There are no sensitive habitat areas within the LAUS area.

LAUS to Metrolink CMF Subsection – Evaluation Matrix				
Measurement Criteria	Alternative LAPT1 Tunnel from At-Grade LAUS (Carried Forward)	Alternative LAPT2 Tunnel from At-Grade or Elevated LAUS (Not Carried Forward)	Alternative LAPT3 Tunnel from At-Grade or Elevated LAUS (Carried Forward)	Alternative LAP1C Viaduct from At- Grade or Elevated LAUS (Carried Forward)
Cultural Resources	<p>Previously Recorded Historical Resources</p> <ul style="list-style-type: none">1 properties adjacent to or near the alignment24 properties within the ½ mile zone <p>Previously Recorded Archeological Resources</p> <ul style="list-style-type: none">1 previously recorded site which would be displaced (in LASHP).25 previously recorded sites within the ½ mile zone	<p>Previously Recorded Historical Resources</p> <ul style="list-style-type: none">4 properties adjacent to or near the alignment26 properties within the ½ mile zone <p>Previously Recorded Archeological Resources</p> <ul style="list-style-type: none">3 previously recorded site adjacent to or near the alignment25 previously recorded sites within the ½ mile zone	<p>Previously Recorded Historical Resources</p> <ul style="list-style-type: none">1 properties adjacent to or near the alignment26 properties within the ½ mile zone <p>Previously Recorded Archeological Resources</p> <ul style="list-style-type: none">3 previously recorded site adjacent to or near the alignment <p>25 previously recorded sites within the ½ mile zone</p>	<p>The LAP1C alignment would be placed on a viaduct to avoid undermining historic, Spring Street, and Broadway bridges. The route would cross these historic-period properties on viaduct.</p> <p>Previously Recorded Historical Resources</p> <ul style="list-style-type: none">5 properties adjacent to or near the alignment31 properties within the ½ mile zone <p>Previously Recorded Archeological Resources</p> <ul style="list-style-type: none">2 previously recorded site adjacent to or near the alignment25 previously recorded sites within the ½ mile zone
Cultural Resources (cont'd)	<p>Common to all alternatives</p> <p>The proposed route has the potential to indirectly impact portions of historic-period properties as a result of noise and vibration from construction activities, and from operation of the high speed train, as well as changes to historic integrity aspects of feeling and setting.</p> <p>Impacts to previously recorded archaeological resources have the potential to occur as a result of direct impacts, such as removal or modification of the intact resource to accommodate the proposed track</p> <p>No impacts to human remains are anticipated.</p>			
Cultural Resources (cont'd)	<p>Common to all tunnel alternatives</p> <p>Impacts to buried archaeological resources have the potential to occur as a result tunneling or trenching.</p> <p>Impacts to paleontological resources have the potential to occur as a result of deep excavation to accommodate proposed tunnels along the project right-of-way. Deep excavation is likely to encounter the Monterey Formation, which is a fossil-bearing stratum.</p>			<p>Common to all viaduct alternatives</p> <p>Impacts to buried archaeological resources have the potential to occur as a result of construction of footings for elevated structures.</p>
Parklands	<p>Impacts from passing close to Los Angeles State Historic Park due to placement and construction of tunnel portals.</p> <p>2 parks and recreational uses adjacent to or intersecting the alignment.</p>	<p>Impacts from passing close to Los Angeles State Historic Park and Elysian Park due to placement and construction of tunnel portals.</p> <p>3 parks and recreational uses adjacent to or intersecting the alignment.</p>	<p>Impacts from passing close to Los Angeles State Historic Park due to placement and construction of tunnel portals.</p> <p>2 parks and recreational uses adjacent to or intersecting the alignment.</p>	<p>Likely direct impacts from passing close to Los Angeles Youth Athletic Club and Downey Recreation Center, and the future Albion Dairy River Park on viaduct. Likely indirect impacts (visual) to Los Angeles State Historic Park and Elysian Park. Likely impacts to bike trails along Los Angeles River.</p> <p>4 parks and recreational uses adjacent to or intersecting the alignment. Likely impacts from passing close to Los Angeles Youth Athletic Club on viaduct and Cypress Recreation Center at grade.</p>

LAUS to Metrolink CMF Subsection – Evaluation Matrix				
Measurement Criteria	Alternative LAPT1 Tunnel from At-Grade LAUS (Carried Forward)	Alternative LAPT2 Tunnel from At-Grade or Elevated LAUS (Not Carried Forward)	Alternative LAPT3 Tunnel from At-Grade or Elevated LAUS (Carried Forward)	Alternative LAP1C Viaduct from At- Grade or Elevated LAUS (Carried Forward)
Agricultural Lands	No impact to agricultural lands.	No impact to agricultural lands.	No impact to agricultural lands.	No impact to agricultural lands.
Natural Environment				
Noise and Vibration	This alternative would leave LAUS on viaduct then immediately transition into a trench before entering a tunnel portal near Main Street, then emerging near Rio De Los Angeles Park. Primary noise and vibration impacts would be to Los Angeles State Historic Park and nearby noise-sensitive land uses during construction activities, but lower impacts after completion. Due to the greatest extent of trench and tunnel sections, this alternative would result in the fewest number of potential operational noise and vibration impacts.	This alternative would leave LAUS on viaduct and continue on viaduct until entering a tunnel portal north of Alameda Street, then emerging near Rio De Los Angeles Park. This alternative would generally result in a greater number of potential operational noise and vibration impact than LAPT1 primarily within Los Angeles State Historic Park and nearby noise-sensitive land uses (due to the longer viaduct portion), but fewer impacts than LAP1C (which is entirely above ground).	This alternative would leave LAUS on viaduct then transition into a trench before entering a tunnel portal near Spring Street, then emerging near Rio De Los Angeles Park. Primary noise and vibration impacts would be to Los Angeles State Historic Park and nearby noise-sensitive land uses during construction activities, but lower impacts after completion.	This alternative, leaving LAUS on viaduct and continuing north on Main Street. This alignment would generate considerable noise impacts passing immediately north of the William Mead Housing Project and the Anne Street School on Main Street. It would then run at-grade or on elevated viaduct near several noise sensitive properties (homes, churches, parklands) on the east side of the Los Angeles River (south of SR-110) and along San Fernando Road (North of SR-110). This increased exposure to sensitive receivers would result in the highest number of potential operational noise and vibration impacts.
Change in Visual and Scenic Resources	This alternative would have a low impact compared to the other alternatives for the following reasons: <ul style="list-style-type: none">It goes into trench and then tunnel immediately after leaving LAUS	This alternative would have a high impact relative to LAPT1 for the following reasons: <ul style="list-style-type: none">A larger portion of the alignment is above ground than for Alternative LAPT1; therefore, the visual impact would be more significant.A larger portion of the alignment would pass through open space area on viaduct than LAP1C; therefore the impact to recreational users would be more significant.	This alternative would have a low impact compared to the other alternatives for the following reasons: <ul style="list-style-type: none">It goes into trench and then tunnel soon after leaving LAUS	The LAP1C alternative would have a high impact for the following reasons: <ul style="list-style-type: none">A larger portion of the alignment is above ground than for Alternative LAPT1; therefore, the visual impact would be more significant.This alternative reaches heights up to 60 feet on the viaduct as the alignment crosses over the Los Angeles River and reaches heights up to 70 feet as it crosses over three historically significant bridges – the Main Street Bridge, North Spring Bridge, and North Broadway Viaduct.The viaduct option reaches heights of up to 80 feet as it crosses over Young Nake Presbyterian Church, Downey Recreation Center, and a historic jail located along the east bank of the Los Angeles River south of the Pasadena Freeway.It is on a high viaduct in close proximity to multifamily dwelling units just north of LAUS.

LAUS to Metrolink CMF Subsection – Evaluation Matrix				
Measurement Criteria	Alternative LAPT1 Tunnel from At-Grade LAUS (Carried Forward)	Alternative LAPT2 Tunnel from At-Grade or Elevated LAUS (Not Carried Forward)	Alternative LAPT3 Tunnel from At-Grade or Elevated LAUS (Carried Forward)	Alternative LAP1C Viaduct from At- Grade or Elevated LAUS (Carried Forward)
Geological and Soil Constraints	Alternative is located outside of known fault rupture zones. 0.75 miles of the alternative's non-tunnel reaches are located within liquefaction hazard zone, with an additional 0.2 miles of cut and cover tunnel. Bored tunnel reaches are expected to be either in bedrock or below the liquefiable soil zone. 2.3 miles of the alternative are within a half-mile radius of city of Los Angeles Methane Zones. 0.75 miles are in the Hansen Dam Flood Inundation Zone.	Alternative is located outside known fault rupture zones. 1.3 miles of the alternative's non-tunnel reaches are located within liquefaction hazard zone. Tunnel reaches are expected to be either in bedrock or below the liquefiable soil zone. 2.4 miles of the alternative are within a half-mile radius of city of Los Angeles Methane Zones. 1.3 miles are in the Hansen Dam Flood Inundation Zone.	Alternative is located outside of known fault rupture zones. 1.2 miles of the alternative's non-tunnel or cut and cover tunnel reaches are located within liquefaction hazard zone. Bored tunnel reaches are expected to be either in bedrock or below the liquefiable soil zone. 2.4 miles of the alternative are within a half-mile radius of city of Los Angeles Methane Zones. 1 mile is in the Hansen Dam Flood Inundation Zone.	Alternative is located outside known fault rupture zones. 3.1 miles of the alternative are located within liquefaction hazard zone. 2.8 miles of the alternative are within a half-mile radius of city of Los Angeles Methane Zones. 2.7 miles are in the Hansen Dam Flood Inundation Zone.
Avoidance of Hazardous Materials	Increased risk of encountering hazardous materials due to substantially greater volume of soil excavation. Some risk of encountering aerially deposited lead and other metals in surface soil. Construction may encounter contaminated groundwater if it extends below grade. The area north of I-5 is located within the San Fernando Valley Superfund Area 3, which has groundwater contaminated by volatile organic compounds.	Increased risk of encountering hazardous materials due to substantially greater volume of soil excavation. Some risk of encountering aerially deposited lead and other metals in surface soil. Construction may encounter contaminated groundwater if it extends below grade. The area north of I-5 is located within the San Fernando Valley Superfund Area 3, which has groundwater contaminated by volatile organic compounds.	Increased risk of encountering hazardous materials due to substantially greater volume of soil excavation. Some risk of encountering aerially deposited lead and other metals in surface soil. Construction may encounter contaminated groundwater if it extends below grade. The area north of I-5 is located within the San Fernando Valley Superfund Area 3, which has groundwater contaminated by volatile organic compounds.	Moderate risk of encountering hazardous materials in excavating soil for pier foundations due to the numerous regulatory database sites in the vicinity. Some risk of encountering aerially deposited lead and other metals in soil. Demolition of existing structures may encounter asbestos, lead-paint, and other hazardous materials. Construction may encounter contaminated groundwater if it extends below grade. The area north of I-5 is located within the San Fernando Valley Superfund Area 3, which has groundwater contaminated by volatile organic compounds.
Agency and Public Input				
Agency and Public Input	The City of LA, Mayor's office, and Metro prefer this alignment and State Parks have no objection to the revised alignment which will not impact the archeological artifacts beneath the site.	This alignment is in conflict with the proposed construction of the Gold Line Yard and the associated Metro/Riboli Family/State Parks Midway yards development.	State Parks have no objection to the revised alignment. Potential conflict with the City of Los Angeles General Plan for the redevelopment between Spring Street, Main Street, Vignes and the Los Angeles River will need to be mitigated by coordination of HST proposals with their redevelopment plans.	This alignment would preserve the San Antonio Winery, but conflicts with the Downey Recreation Center, proposed park at the Dairy site, old city historic jail, and limits accessibility to the Los Angeles River from the east bank. The 60 foot viaduct will create visual impacts to all of the communities north of LAUS to I-5. Potential conflict with the City of Los Angeles General Plan for the redevelopment between Spring Street, Main Street, Vignes and the Los Angeles River

Table A-2 Metrolink CMF to SR 2 Subsection – Evaluation Matrix

Metrolink CMF to SR 2 Subsection – Evaluation Matrix				
Measurement Criteria	Metrolink Alignment Alternative At-Grade for LAP1C (Carried Forward)	Metrolink Alignment Alternative in Trench for all options (Not Carried Forward)	San Fernando Rd. Align. Alternative in Trench for all options (Not Carried Forward)	Tunnel Alternative beneath RDLASP for LAPT1, LAPT2, LAPT3 (Carried Forward)
Design Objectives				
Journey time	92 seconds (Speed limited to 60 mph)	92 seconds (60 mph)	55 seconds (140 mph)	55 seconds (140 mph)
	1.8 miles	1.8 miles	1.8 miles	1.8 miles
Intermodal Connections	No station in this part of the route	Similar to at-grade	Similar to at-grade	Similar to at-grade
Operating Costs	Lower	Greater because of pumping to drain trench	Greater because of pumping to drain trench	Slightly greater for because of longer tunnel
Capital Cost Factor	1.0	2.2 (LAP1C) 3.3 (LAPT1, LAPT2,LAPT3)	3.3	3.9
Land Use				
Transit Oriented Development (TOD) Potential	No station in this part of the route	Similar to at-grade	Similar to at-grade	Similar to at-grade
Consistency with Other Planning	This alternative matches the existing Metrolink/freight tracks horizontally and vertically. These tracks divide the Los Angeles River from the Rio De Los Angeles State Park (RDLASP). Mitigation of this barrier could be achieved by adding pedestrian underpasses beneath the tracks. This option would conflict with plans in the Los Angeles River Revitalization Master Plan to connect the park with the river, and efforts for river-edge improvements and restoration to native habitat, and the creation of passive (park) recreation, education, and cultural facilities. The at-grade option would also impact an under-construction high school campus located on the eastern side of the existing Metrolink alignment adjacent to the RDLASP.	Metrolink, and UPRR have stated that they cannot share a trench with HST for operational and safety reasons. This option would therefore increase the barrier between the Rio De Los Angeles State Park and the Los Angeles River since the different levels for the tracks would reduce the opportunities to make connections in future. This option would conflict with plans in the Los Angeles River Revitalization Master Plan to connect the park with the river, and efforts for river-edge improvements and restoration to native habitat, and the creation of passive (park) recreation, education, and cultural facilities. This alternative will result in temporary construction impacts to Taylor Yard related to trenching.	This alternative would require taking land from the edge of Rio De Los Angeles State Park and an under-construction high school site in order to create the trench. The trench portions would be partly covered for lengths up to 800 feet, maintaining connectivity by creating land bridges that would allow pedestrian and vehicular access to the RDLASP and so be compatible with Los Angeles River Revitalization Master Plan efforts, favor landscaping improvements, and allow for compatible uses such as parking. This alternative will result in temporary construction impacts to RDLASP and an under-construction high school site related to trenching. However, since this alternative would not impede connectivity to the Los Angeles River, it is consistent with the long term goals of the Los Angeles River Revitalization Master Plan and would allow access to planned river edge improvements.	By extending the tunnel, impacts on RDLASP and the school will be minimized. Since this alternative would not impede connectivity to the Los Angeles River, it is consistent with the long term goals of the Los Angeles River Revitalization Master Plan and would allow access to planned river edge improvements.
Constructability				
Constructability	This alternative will be the simplest to construct, but requires work alongside the operating railway.	Construction of a trench in Taylor Yard will be less complex than along San Fernando Road, but more complex than at grade construction.	This option will be the most complex to construct, with a deep trench created in a narrow strip of land beside San Fernando Road.	Extending the tunnel avoids the additional complexity of constructing the trench beside San Fernando Road.
Disruption to Existing Railroad	Metrolink/UPRR tracks relocated to allow HST to share right-of-way	Metrolink/UPRR tracks relocated to allow HST to share right-of-way.	Least disruption to Metrolink/UPRR tracks.	Least disruption to Metrolink/UPRR tracks.

Metrolink CMF to SR 2 Subsection – Evaluation Matrix				
Measurement Criteria	Metrolink Alignment Alternative At-Grade for LAP1C (Carried Forward)	Metrolink Alignment Alternative in Trench for all options (Not Carried Forward)	San Fernando Rd. Align. Alternative in Trench for all options (Not Carried Forward)	Tunnel Alternative beneath RDLASP for LAPT1, LAPT2, LAPT3 (Carried Forward)
Disruption to and Relocation of Utilities	Most of this segment is at grade, which has a minor impact on existing utilities; longitudinal conflicts will require relocation and crossings will require protection. Utilities within the right-of-way include: <ul style="list-style-type: none">1 HP, 2 MP gas crossings1 x 20" oil crossing, one ¼ mile longitudinal1 x 69 KV electrical crossing1 telecom crossing, one ¼ mile longitudinal7 storm crossings, 2 over 10' wide3 sewer crossings3 water crossings, one 70" diameter	Most of this segment is in trench, which has a major impact on existing utilities; both longitudinal conflicts and crossings. Storm and sewer crossings in trench areas may require siphons or pump stations. Utilities within the right-of-way include: <ul style="list-style-type: none">1 HP, 2 MP gas crossings1 x 20" oil crossing, one ¼ mile longitudinal1 x 69 KV electrical crossing1 telecom crossing, one ¼ mile longitudinal7 storm crossings, 2 over 10' wide3 sewer crossings3 water crossings, one 70" diameter	Most of this segment is in trench, which has a major impact on existing utilities; both longitudinal conflicts and crossings. Storm and sewer crossings in trench areas may require siphons or pump stations. Utilities within the right-of-way include: <ul style="list-style-type: none">1 HP, 3 MP, 3 LP gas crossings, 2 longitudinal conflicts1 x 20" oil crossing69 KV electrical - 2/3 mile longitudinal1 telecom crossing8 storm crossings, 3 over 10' wide5 sewer crossings, one 48" diameter, 1 longitudinal3 water crossings, one 70" diameterShaft for NEIS sewer is close to this alignment	Most of this segment is in tunnel, thereby minimizing impact on utilities, except in trench segments transitioning to tunnel. Utilities within the right-of-way include: <ul style="list-style-type: none">1 HP, 2 MP gas crossings1 x 20" oil crossing, one ¼ mile longitudinal1 x 69 KV electrical crossing1 telecom crossing, one ¼ mile longitudinal7 storm crossings, 2 over 10' wide3 sewer crossings3 water crossings, one 70" diameter Of these utilities, crossings in trench areas include: 1 gas, 2 storm including one 10' wide, and 2 sewer. Storm and sewer crossings in trench areas may require siphons or pump stations.
Disruption to Communities				
Displacements				
Residential Displacements	Planned housing development south of the Park would be affected.	Planned housing development south of the Park would be affected.	Planned housing development south of the Park would be affected.	Planned housing development south of the Park would not be directly affected, but easements for tunnel construction beneath it would be needed.
Business Displacements	2– commercial parcels impacted 9 – industrial parcels impacted	2 – commercial parcels impacted 9 – industrial parcels impacted	5 – commercial parcels impacted 8 – industrial parcels impacted	2 – commercial parcels impacted 7 – industrial parcels impacted
Properties with Access Affected	0	0	1 - industrial	0
Local Traffic Effects near stations	No station in this part of the route	Similar to at-grade	Similar to at-grade	Similar to at-grade
Highway Grade Separations and Closures	None	None	One closure (access road to displaced industrial sites). Bridges over trench give access to park and high school.	One closure (access road to displaced industrial sites).
Environmental Resources				
Biological Resources	No known biologically sensitive habitats affected.	Similar to at-grade	No known impacts (park, which is affected, has been recently constructed)	No known biologically sensitive habitats affected.
Cultural Resources	Impacts to previously recorded archaeological resources have the potential to occur as a result of direct impacts, such as removal or modification of the intact resource to accommodate the proposed track or footings.	Impacts to previously recorded archaeological resources have the potential to occur as a result of direct impacts, such as removal or modification of the intact resource to accommodate the proposed track or footings or the trench. Impacts to paleontological resources have the potential to occur as a result of deep excavation to accommodate proposed trenching along the project right-of-way. Deep excavation is likely to encounter the Monterey Formation, which is a fossil-bearing stratum.	Impacts to previously recorded archaeological resources have the potential to occur as a result of direct impacts, such as removal or modification of the intact resource to accommodate the proposed track or footings or the trench. Impacts to paleontological resources have the potential to occur as a result of deep excavation to accommodate proposed trenching along the project right-of-way. Deep excavation is likely to encounter the Monterey Formation, which is a fossil-bearing stratum.	Impacts to previously recorded archaeological resources have the potential to occur as a result of direct impacts, such as removal or modification of the intact resource to accommodate the proposed track or footings or the trench. Impacts to paleontological resources have the potential to occur as a result of deep excavation to accommodate proposed trenching along the project right-of-way. Deep excavation is likely to encounter the Monterey Formation, which is a fossil-bearing stratum.
Parklands	Indirect impact to the adjoining Rio de Los Angeles State Park but no direct impact. The at-grade option will inhibit connectivity with the Los Angeles River which would need to be provided by underpasses or bridging over tracks. Impact on the proposed park on the 'bow-tie' site.	Indirect impact to the adjoining Rio de Los Angeles State Park but no direct impact. The combination of an HST trench with Metrolink at-grade tracks will further inhibit connectivity with the Los Angeles River. Impact on the proposed park on the 'bow-tie' site.	2.5 acres taken from the adjoining Rio de Los Angeles State Park, mitigated by partially covering the trench	No impact to Parklands

Metrolink CMF to SR 2 Subsection – Evaluation Matrix				
Measurement Criteria	Metrolink Alignment Alternative At-Grade for LAP1C (Carried Forward)	Metrolink Alignment Alternative in Trench for all options (Not Carried Forward)	San Fernando Rd. Align. Alternative in Trench for all options (Not Carried Forward)	Tunnel Alternative beneath RDLASP for LAPT1, LAPT2, LAPT3 (Carried Forward)
Agricultural Lands	No impact to agricultural lands.	No impact to agricultural lands.	No impact to agricultural lands.	No impact to agricultural lands.
Natural Environment				
Noise and Vibration	This Alternative, running entirely at grade along the existing Metrolink corridor would generally result in the greatest number of potential operational noise and vibration impacts, especially at the Rio De Los Angeles State Park, and adjacent high school site. Mitigation of these impacts would also be likely to mitigate the noise from the Metrolink/freight tracks.	This Alternative, running entirely in a trench along the existing Metrolink corridor with several portions covered would generally result in fewer number of potential operational noise and vibration impacts, especially at the Rio De Los Angeles Park, and the high school site, but noise from the existing Metrolink/freight tracks would not be mitigated.	This Alternative, running entirely in a trench along San Fernando Road with several portions covered would generally result in a moderate number of potential operational noise and vibration impacts relative to other alternatives, due to its proximity to both the Rio De Los Angeles Park, and the high school site as well as to sensitive receivers east of San Fernando Road.	This Alternative, running in tunnel past the RDLASP and school, will have the least operational noise and vibration effects.
Change in Visual and Scenic Resources	During construction activities, this alternative would have a relatively lower visual impact compared to the other two alternatives because the construction period would be shorter and would require less use of heavy equipment than the “in trench” alternatives. However, during the operation of the rail line, this alternative would have a relatively higher visual impact than the other alternatives because it would be visible to recreational users within the Rio de Los Angeles state park area, and to occupants of and visitors to the high school.	During construction activities, the two “in-trench” alternatives would have a relatively higher visual impact compared to the other (at-grade) alternative because the construction period would be longer and would require the use of more heavy equipment with the in-trench alternatives than with an at-grade alternative. However, during the operation of the rail line, the in-trench alternatives would have a relatively lower visual impact than the at-grade alternative because the rail line would not be visible to recreational users within the Rio de Los Angeles state park area or to occupants of and visitors to the high school (as it would be with the at-grade alternative). During operation of the rail line, the two in-trench alternatives would have equal impact, from a visual standpoint, since neither would be visible to individuals passing through, or working, or residing in the area, and recreational users.	During construction activities, the two “in-trench” alternatives would have a relatively higher visual impact compared to the other (at-grade) alternative because the construction period would be longer and would require the use of more heavy equipment with the in-trench alternatives than with an at-grade alternative. However, during the operation of the rail line, the in-trench alternatives would have a relatively lower visual impact than the at-grade alternative because the rail line would not be visible to recreational users within the Rio de Los Angeles state park area or to occupants of and visitors to the high school (as it would be with the at-grade alternative). During operation of the rail line, the two in-trench alternatives would have equal impact, from a visual standpoint, since neither would be visible to individuals passing through, or working, or residing in the area, and recreational users.	This option would have the least visual impact.
Geological and Soil Constraints	Located outside known fault rupture zones. 1.5 miles of the alternative are located within a liquefaction hazard zone. 1.6 miles of the alternative are in the Hansen Dam and Eagle Rock Dam Flood Inundation Zones.	Located outside known fault rupture zones. 1.5 miles of the alternative are located within a liquefaction hazard zone. 1.6 miles of the alternative are in the Hansen Dam and Eagle Rock Dam Flood Inundation Zones.	Located outside known fault rupture zones. 1.5 miles of the alternative are located within a liquefaction hazard zone. 1.5 miles of the alternative are in the Hansen Dam and Eagle Rock Dam Flood Inundation Zones.	Located outside known fault rupture zones. 1.5 miles of the alternative are located within a liquefaction hazard zone. 1.5 miles of the alternative are in the Hansen Dam and Eagle Rock Dam Flood Inundation Zones.
Avoidance of Hazardous Materials	Metrolink’s Taylor Yard is located adjacent to the west of the alignment and is listed in numerous regulatory databases. Routine maintenance and major diesel locomotive service and repair have been conducted at this site for nearly 100 years. Contaminants of concern in soil and groundwater are principally oil, grease, diesel, solvents, and metals. There is some risk of encountering aerially deposited lead and other metals in soil. Demolition of existing structures may encounter asbestos, lead-paint, and other hazardous materials.	Metrolink’s Taylor Yard is located adjacent to the west of the alignment and is listed in numerous regulatory databases. Routine maintenance and major diesel locomotive service and repair have been conducted at this site for nearly 100 years. Contaminants of concern in soil and groundwater are principally oil, grease, diesel, solvents, and metals. Construction may encounter contaminated groundwater if it extends below grade. The alignment is located within the San Fernando Valley Superfund Area 3, which has groundwater contaminated by volatile organic compounds. There is some risk of encountering aerially deposited lead and other metals in soil. Demolition of existing structures may encounter asbestos, lead-paint, and other hazardous materials.	Some risk of encountering hazardous materials in soil from numerous listed hazardous materials release sites adjacent to the east of the alignment. Construction may encounter contaminated groundwater if it extends below grade. The alignment is located within the San Fernando Valley Superfund Area 3, which has groundwater contaminated by volatile organic compounds. There is some risk of encountering aerially deposited lead and other metals in soil. Demolition of existing structures may encounter asbestos, lead-paint, and other hazardous materials.	Some risk of encountering hazardous materials in soil from numerous listed hazardous materials release sites adjacent to the east of the alignment. Construction may encounter contaminated groundwater if it extends below grade. The alignment is located within the San Fernando Valley Superfund Area 3, which has groundwater contaminated by volatile organic compounds. There is some risk of encountering aerially deposited lead and other metals in soil. Demolition of existing structures may encounter asbestos, lead-paint, and other hazardous materials.

Metrolink CMF to SR 2 Subsection – Evaluation Matrix				
Measurement Criteria	Metrolink Alignment Alternative At-Grade for LAP1C (Carried Forward)	Metrolink Alignment Alternative in Trench for all options (Not Carried Forward)	San Fernando Rd. Align. Alternative in Trench for all options (Not Carried Forward)	Tunnel Alternative beneath RDLASP for LAPT1, LAPT2, LAPT3 (Carried Forward)
Agency and Public Input				
Agency and Public Input	FOLAR, Councilmember Reyes’ office, Metro and other downtown Los Angeles stakeholders including Mt. Washington Homeowners Alliance, Glassell Park Neighborhood Council, Greater Cypress Park Neighborhood Council and Lincoln Heights Neighborhood Council do not favor this alignment as it will only provide pedestrian access to the Los Angeles River via a pedestrian bridge or tunnel under the rail line. This alignment does not impact any of LAUSD’s policies pertaining to the new school site.	The City of Los Angeles prefers this alignment to the San Fernando Road alignment because it does not encroach on Rio de Los Angeles Park. Metrolink and UPRR have stated that they would not be able to share a trench with HSR, and so this alternative will not give level access to the Los Angeles River. Pedestrian access to the Los Angeles River could only be via a pedestrian bridge over the Metrolink tracks.	The direct impact to Rio de Los Angeles State Park during construction, and the permanent reduction in area of the park, is not acceptable to State Parks. If this alignment also relocated Metrolink/freight into a shared trench along San Fernando Road between the park and Los Angeles River it would provide for better connectivity than either of the other alignments. However, since Metrolink have stated that this would not be possible, the perceived benefit to long-term plans for river revitalization will not be realized by this alternative. LAUSD did not prefer this alignment because it will disrupt their playing fields during construction.	The City of Los Angeles prefers this alignment because it does not encroach on Rio de Los Angeles Park. FOLAR prefers this alignment because it doesn’t impact long-term plans for river revitalization. LAUSD prefers this alignment because it will not disrupt their playing fields during construction.

Table A-3 SR2 to Sylmar Subsection Stations – Evaluation Matrix

SR 2 to Sylmar Subsection Stations – Evaluation Matrix					
Evaluation Measure	Alternative BVS Buena Vista Station Location (Carried Forward)	Alternative BSS Branford Street Station Location (Carried Forward)	Alternative PWS Pacoima Wash Station Location (Not Carried Forward)	Alternative SFS San Fernando Station Location (Carried Forward)	Alternative BMS Burbank Metrolink Station Location (Not Carried Forward)
Design Objectives					
Journey Time	Included within alignment data	Similar to BVS	Similar to BVS	Similar to BVS	Increased journey time for non-stop trains and operational constraints from non standard station loops
Intermodal Connections	Best linkage with Bob Hope Airport and its planned transit center (1 mile away). Within half a mile of I-5 freeway, reached along Hollywood Way or North Buena Vista Blvd. Co-located Metrolink stop would be 3 miles from existing Downtown Burbank Metrolink Station. Currently Metro bus routes 94, 169, 222, and 794 as well as Burbank Bus's Empire to Downtown Shuttle pass within 1000 feet of the station site. Metro route 292 passes within 1500 feet. Some of these routes would be adjusted and new routes introduced to serve the HST station.	One mile from I-5, with a partial interchange at Branford St., and a full interchanges at Osborne St and Laurel Canyon Blvd/Sheldon St. Within a half mile of Whiteman Airport. Potential for co-locating one of two Metrolink stations within 4 miles. Currently Metro bus routes 224 and 794 pass by the station site. In addition, Metro routes 166 and 364 traverses the HST alignment within 1000 feet of the station site. Some of these routes would be adjusted and new routes introduced to serve the HST station.	In close proximity to SR 118, with a full interchange along San Fernando Road that also leads to I-5 and I-210. Currently Metro bus routes 224 and 794 pass by the station site. In addition, Metro route 168 traverses the HST alignment within 1000 feet of the station site. Some of these routes would be adjusted and new routes introduced to serve the HST station.	Over one mile from SR 118 along San Fernando Road, within 1 mile of I-5 along Brand Boulevard. Currently Metro bus routes 94, 224, 230, 239, 724, and 734 as well as LADOT bus route 574 pass by the station site. In addition, Route 234 traverses the HST alignment within 1000 feet of the station site. Some of these routes would be adjusted and new routes introduced to serve the HST station.	Good linkage with Metrolink, at the existing Metrolink station and giving access to the Ventura line. Currently Burbank Bus operates the Metrolink to Media District Shuttle (MM), Downtown Burbank Loop (DL), and the Empire to Downtown Shuttle (ED) to the station. Metro bus 92, 96, 154, 155, 164, 165, 292, 794 operate to the station. Other bus service connections include Glendale Bee Line 12 and Santa Clarita Transit 794. Some of these routes would be adjusted and new routes introduced to serve the HST station.
Operating Costs	Lower	Lower	Higher if station is elevated (60 feet up)	Lower	Lower
Capital Cost Factor	1.0	1.1	3.0	1.1	1.8
Land Use					
Transit Oriented Development (TOD) Potential	The proposed station platform location is within the City of Burbank. The platform location lies within Burbank's Golden State Redevelopment Plan Area. The planned land uses within a quarter mile are Industrial, Residential, and Public. Though there is significant airport industrial land uses currently, there is potential to create a substantial mixed-use TOD Planning area, that takes advantage of the large land area that can be assembled proximate to the station.	The proposed station lies within the City of Los Angeles – Arleta/Pacoima Community Plan Area. The majority of the area immediately surrounding the proposed station location is currently industrial land, both developed and open space (water recharge ponds). The city Redevelopment Agency has identified this area for redevelopment, and, as such, could enhance TOD opportunity if sufficient acreage can be assembled. There is the potential to assemble a significant site that could be redeveloped as a TOD opportunity, by using tunnel excavation spoil to partially fill the quarry.	The proposed station lies within the City of Los Angeles – Arleta/Pacoima Community Plan Area. The planned land uses within a quarter mile are industrial, public, and residential. If elevated, the station platform height could be detrimental to any station area development opportunities, given the disconnect from ground level land uses and development. However, the City has identified this area for redevelopment and this could enhance the potential for TOD opportunities.	The proposed station lies within the City of San Fernando, Corridors Specific Plan and Redevelopment Project Area #1. The planned land uses within a quarter mile are commercial, multi-use, public, industrial, and residential. The presence of commercial and public uses appears to have a high potential for TOD, however, since most of the area immediately adjacent to the station area is developed as low density residential, it may be challenging to create a significant parcel to support an ambitious TOD opportunity.	The proposed station lies within the City of Burbank Redevelopment Plan's South San Fernando project area which consists of a large number of industrial facilities and the Burbank Water and Power Plant. The power plant restricts the opportunities for TOD directly adjacent to the station. TOD opportunities in existing downtown Burbank would be separated from the station by the I-5 freeway, though access between could be achieved by construction of pedestrian / bike bridges.

SR 2 to Sylmar Subsection Stations – Evaluation Matrix					
Evaluation Measure	Alternative BVS Buena Vista Station Location (Carried Forward)	Alternative BSS Branford Street Station Location (Carried Forward)	Alternative PWS Pacoima Wash Station Location (Not Carried Forward)	Alternative SFS San Fernando Station Location (Carried Forward)	Alternative BMS Burbank Metrolink Station Location (Not Carried Forward)
Consistency with Other Planning	Overall, the potential station platform location is consistent with local planning efforts and adopted plans. The Golden State Redevelopment Plan objectives, policies and goals emphasize integration and enhancement of multi-modal transportation systems.	Overall, the potential station platform location is consistent with local planning efforts and adopted plans. The City of Los Angeles – Arleta/Pacoima Community Plan Area objectives, policies, and goals emphasize integration and enhancement of multi-modal transportation systems.	Overall, the potential station is consistent with local planning efforts and adopted plans. The City of Los Angeles – Arleta/Pacoima Community Plan Area, Tujunga /Pacoima Watershed Plan objectives, policies, and goals emphasize integration and enhancement of multi-modal transportation systems.	Overall, the potential station is consistent with some of the objectives of the San Fernando General Plan (GP) (attract new commercial activities, promote economic vitality), while inconsistent with others (retain the small town character, conserve single family neighborhoods).	<p>The potential station is consistent with the objectives of Burbank’s South San Fernando Redevelopment Plan (removing obsolete and substandard buildings and encouraging transit supportive mixed developments) and City Centre project area(encourage mixed-use development, promote increased density and reduced vehicle trips to maximize job creation, and well designed pedestrian access).</p> <p>The station is also consistent with the policies and objectives of the Burbank General Plan (provide access to public transit from regional centers, promote transit use for people who live near transit centers by increased residential densities, and transit oriented development near transit centers, pursue transportation and land use alternatives to improve Burbank’s access to local and regional destinations).</p>
Constructability					
Constructability	Expected to be most straightforward to construct.	Expected to be more difficult to construct because of the need for a grade separation.	Expected to be most difficult to construct because station is either on high viaduct and this viaduct needs to cross over the SR 118 freeway, or a length of the SR 118 freeway would need to be reconstructed.	Expected to be more difficult to construct because of the need for a grade separation	Expected to be more difficult to construct because of the need to reconstruct existing road bridges
Disruption to existing railroads	Included within alignment data	Similar to BVS	Similar to BVS	Similar to BVS	Greater disruption because of the need to reconstruct existing road bridges and relocation required close to Burbank Junction and the Empire Avenue grade separation
Disruption to and relocation of utilities	Included within alignment data	Similar to BVS	Similar to BVS	Similar to BVS	Similar to BVS
Disruption to Communities					
Displacements					
Residential Displacements	None	None	A number of residential parcels would be impacted by temporary diversion of SR 118 during construction of the at-grade option	16 parcels impacted (4.1 acres)	None

SR 2 to Sylmar Subsection Stations – Evaluation Matrix					
Evaluation Measure	Alternative BVS Buena Vista Station Location (Carried Forward)	Alternative BSS Branford Street Station Location (Carried Forward)	Alternative PWS Pacoima Wash Station Location (Not Carried Forward)	Alternative SFS San Fernando Station Location (Carried Forward)	Alternative BMS Burbank Metrolink Station Location (Not Carried Forward)
Business Displacement (in excess of No Station)	8 – commercial parcels impacted (6.8 acres) 22 – industrial parcels impacted (15.7 acres)	9 – industrial parcels impacted (18.2 acres)	17 – industrial parcels impacted (23.9 acres) 1 – school parcel impacted (0.1 acres). Land take on the western boundary of San Fernando Middle School property is marginally greater for this station alternative.	17 – commercial parcels impacted (7.7 acres) 4 – industrial parcels impacted (13.4 acres) -2 – schools parcels impacted (-0.7 acres). Land take on the western boundaries of San Fernando Middle School and Kinder Care Learning Center are lower for this station alternative. Note: the No Station alignment has a marginal impact on a number of small parcels to the east of the alignment. The station alignment has no impact on the east side but a major impact on a smaller number of large parcels on the west of the alignment; hence the excess number of parcels affected by the station is negative.	30 – commercial parcels impacted (7.3 acres) 50 – industrial parcels impacted (15.3 acres)
Properties with Access Affected	0	0	0	0	0
Local Traffic Effects	<p>All five station sites are projected to generate comparable boarding levels, with similar overall increases in traffic. Differences in effect on local traffic relate primarily on the areas roadway network's completeness and capacity. Local traffic impacts will be studied in detail in the EIR/EIS.</p> <p>Arterials, including San Fernando Road and N. San Fernando Road, Cohasset Street, Glenoaks Blvd., N. Ontario Street, Buena Vista Street and Hollywood Way, would be affected by increased traffic generated by the station.</p> <p>Hollywood Way would be expected to see an increase in traffic between the station and Bob Hope Airport. The area around the airport currently experiences high levels of traffic congestion. It can be anticipated that the location of the HST station proximate to the airport will increase congestion levels. This impact is likely to be most pronounced on surface streets in the vicinity of the airport, and less pronounced on the I-5 and SR 134 freeways.</p>	<p>All five station sites are projected to generate comparable boarding levels, with similar overall increases in traffic. Differences in effect on local traffic relate primarily on the areas roadway network's completeness and capacity. Local traffic impacts will be studied in detail in the EIR/EIS.</p> <p>The limited network of existing arterial streets would result in traffic increases that will likely be most pronounced on San Fernando Road. Other local roadways that are likely to be affected include Branford Street, Montague Street, Osborne Street, Laurel Canyon Blvd. and Glenoaks Blvd. The impacts on I-5, and its partial interchange at Branford St. and full interchange at Osborne St. will be affected, though the relative impacts will be less pronounced given current high traffic volumes.</p>	<p>All five station sites are projected to generate comparable boarding levels, with similar overall increases in traffic. Differences in effect on local traffic relate primarily on the areas roadway network's completeness and capacity. Local traffic impacts will be studied in detail in the EIR/EIS.</p> <p>As the primary means of access to the station location SR 118 and San Fernando Road, would experience the most significant traffic increases. Impacts are likely to be more pronounced on San Fernando Road; less so on SR 118. The limited arterial network proximate to the station location would result in concentrated traffic increases east-west on Paxton Street and Vaughn Street, and north-south on Laurel Canyon Blvd., Bradley Avenue, Herrick Avenue, and Glenoaks Blvd.</p>	<p>All five station sites are projected to generate comparable boarding levels, with similar overall increases in traffic. Differences in effect on local traffic relate primarily on the areas roadway network's completeness and capacity. Local traffic impacts will be studied in detail in the EIR/EIS.</p> <p>SR 118 and San Fernando Road, as important access routes to the station location would experience traffic increases. Traffic impacts are likely to most pronounced along San Fernando Road since this arterial street would be the primary point of access to the station location. Traffic increases would also be experienced at the I-5 interchanges at Brand Blvd. and San Fernando Mission Blvd. though are likely to be relatively modest given current traffic volumes. Other arterials expected to experience increase demand include Truman Street, Maclay Street, Laurel Canyon Blvd., 4th Street, 5th Street and Glenoaks Blvd.</p>	<p>All five station sites are projected to generate comparable boarding levels, with similar overall increases in traffic. Differences in effect on local traffic relate primarily on the areas roadway network's completeness and capacity. Local traffic impacts will be studied in detail in the EIR/EIS.</p> <p>Burbank Blvd between I-5 Southbound and I-5 Northbound ramps, and San Fernando Blvd north of Burbank Blvd, are currently operating at or beyond capacity (LOS E or F) under existing conditions. Based on the future with project conditions analysis (five parking areas totaling 7,000 spaces in close proximity to the station) it is assumed that four roadway segments will operate at or beyond capacity including:</p> <ul style="list-style-type: none">• Magnolia Blvd east of Victory Blvd• Burbank Blvd east of Victory Blvd• Burbank Blvd between I-5 Southbound and I-5 Northbound ramps <p>San Fernando Blvd north of Burbank Blvd In most cases widening is not seen as a viable potential mitigation measure based on the built-out nature surrounding area and current city policies.</p>

SR 2 to Sylmar Subsection Stations – Evaluation Matrix					
Evaluation Measure	Alternative BVS Buena Vista Station Location (Carried Forward)	Alternative BSS Branford Street Station Location (Carried Forward)	Alternative PWS Pacoima Wash Station Location (Not Carried Forward)	Alternative SFS San Fernando Station Location (Carried Forward)	Alternative BMS Burbank Metrolink Station Location (Not Carried Forward)
Environmental Resources					
Biological Resources	No known biologically sensitive habitats affected.	The Branford Street station may affect potential special aquatic resources areas that may exist in the quarry or ponds.	No known biologically sensitive habitats affected.	No known biologically sensitive habitats affected.	No known biologically sensitive habitats affected.
Cultural Resources	The CHRIS records search (June 2009) did not identify previously recorded cultural resources within a half-mile search radius of this station. Therefore, no previously recorded cultural resources are anticipated to be adversely affected by station construction.	The CHRIS records search (June 2009) did not identify previously recorded cultural resources within a half-mile search radius of this station. Therefore, no previously recorded cultural resources are anticipated to be adversely affected by station construction.	The CHRIS records search (June 2009) identified three properties within a half-mile search radius of the station that were previously assigned NRHP Status Code 2S2 (NRHP-Eligible, CRHR-listed). These cultural resources are located outside of the area of direct impact for the station construction, and therefore are not anticipated to be adversely affected by the project.	The CHRIS records search (June 2009) identified one NRHP-listed property within the half-mile search radius: (Lopez Adobe – NR-71000157/19-186580). In addition, the CHRIS records search (June 2009) identified six properties previously assigned NRHP Status Code 2S2 (NRHP-Eligible, CRHR-listed) within the half-mile search radius. Three properties were not evaluated for NRHP eligibility, and one property was previously assigned NRHP Status Code 5S2 (Local Register-eligible) within the half-mile search radius, per the CHRIS records search (June 2009). These cultural resources are located outside of the area of direct impact for the station construction, and therefore are not anticipated to be adversely affected by the project.	The CHRIS records search (June 2009) did not identify previously recorded cultural resources within a half-mile search radius of this station. Therefore, no previously recorded cultural resources are anticipated to be adversely affected by station construction.
Parklands	May impact trail system along San Fernando Road.	May impact trail system along San Fernando Road.	May impact trail system along San Fernando Road.	May impact trail system along San Fernando Road.	May impact trail system along San Fernando Road.
Agricultural Lands	No agricultural lands within or adjacent to station footprint.	No agricultural lands within or adjacent to station footprint.	No agricultural lands within or adjacent to station footprint.	No agricultural lands within or adjacent to station footprint.	No agricultural lands within or adjacent to station footprint.
Natural Environment					
Noise and Vibration	This station alternative is just north of San Fernando Road near the Burbank airport and also within 200 feet of several blocks of existing residential structures just north of San Fernando Road. The noise impacts due to this alternative are likely moderate.	This station alternative is centered in an undeveloped area approximately 2000 feet from residential developments to the west and south. The opportunity for noise impacts is low to moderate.	This station alternative is located in the middle of an existing industrial area with established residential neighborhoods to the south-east and north-east. If elevated, the opportunity for noise impacts is moderate because the high viaducts extend past these residential areas.	This station alternative is situated in the midst of the San Fernando civic area and is within several hundred feet of San Fernando Middle School, multi family dwelling units, a police station and court building, representing a moderate noise impact scenario.	This station alternative is the same location as the existing Downtown Burbank Metrolink Station, located between Olive Avenue and Magnolia Boulevard, and between I-5 and Burbank Water and Power Plant. The nearest residential development is approximately 800 feet from this station and I-5 is between this residential development and the proposed station. Due to the higher ambient noise level at the residence, the noise impact is expected to be low.

SR 2 to Sylmar Subsection Stations – Evaluation Matrix					
Evaluation Measure	Alternative BVS Buena Vista Station Location (Carried Forward)	Alternative BSS Branford Street Station Location (Carried Forward)	Alternative PWS Pacoima Wash Station Location (Not Carried Forward)	Alternative SFS San Fernando Station Location (Carried Forward)	Alternative BMS Burbank Metrolink Station Location (Not Carried Forward)
Change in Visual and Scenic Resources	This station alternative is on low embankment and located in close proximity to sensitive receptor locations such as residential uses and would have a potential moderate impact.	This station alternative is on low embankment and located in close proximity to sensitive receptor locations such as designated open space uses and would have a potential moderate impact.	If this station alternative is elevated and located in close proximity to sensitive receptor locations such as public facilities, residential uses, and open space, it would have a potential high impact.	This station alternative is on low embankment and located in close proximity to sensitive receptor locations such as public facilities and residential uses, and would have a potential moderate impact.	This station alternative is surrounded by industrial and commercial uses. The nearest residential neighborhood is close to one-half mile away, as is the nearest recreational area. No open space areas are located within a one-mile radius of the station. The existing Metrolink station is located adjacent to the proposed station. Based on these factors, the potential impact would be low.
Geological and Soil Constraints	The site is located outside known fault rupture and liquefaction hazard zones. In Hansen Dam Flood Inundation Zone.	The site is located inside the fault-rupture hazard zone for the Verdugo Fault, as determined for this project. The Verdugo fault is considered capable of fault rupture, but with a low probability of rupture within the design life of the system. The Verdugo fault does not have a defined Alquist-Priolo earthquake fault zone. The site is located outside known liquefaction hazard zones. The northern end of the station footprint is located within the city of Los Angeles Methane Zone. In Pacoima and Hansen Dam Flood Inundation Zones.	The site is located inside the fault-rupture hazard zone for the Verdugo Fault, as determined for this project. The Verdugo fault is considered capable of fault rupture, but with a low probability of rupture within the design life of the system. The Verdugo fault does not have a defined Alquist-Priolo earthquake fault zone. A high viaduct is not acceptable in the fault rupture zone. The site is located outside known liquefaction hazard zones. In city of Los Angeles Methane Zone and Pacoima Dam Flood Inundation Zone.	The northern end of the station footprint is located within the Alquist-Priolo earthquake fault zone for the San Fernando fault. The fault is active and will be subject to further study. Ground rupture is possible and weaker bearing soils may also be present. The northern end of the station footprint is located within a liquefaction hazard zone. In Pacoima Dam Flood Inundation Zone.	The site is located outside of known fault-rupture zones. The entire station footprint is located within a liquefaction hazard zone. The northern end of the station footprint is located within the Hansen Dam Flood Inundation Zone.
Avoidance of Hazardous Materials	Construction may encounter contaminated groundwater if it extends 30 feet below ground level. The station is located within the San Fernando Valley Superfund Area 1, which has groundwater contaminated by volatile organic compounds. Some risk of encountering aerially deposited lead and other metals in soil. Demolition of existing structures may encounter asbestos, lead-paint, and other hazardous materials	Construction may encounter contaminated groundwater if it extends 30 feet below ground level. The station is located within the San Fernando Valley Superfund Area 1, which has groundwater contaminated by volatile organic compounds. Also, located within the former Branford Landfill which has reported methane issues. Some risk of encountering aerially deposited lead and other metals in soil. Demolition of existing structures may encounter asbestos, lead-paint, and other hazardous materials.	Some risk of encountering hazardous materials in soil or groundwater from a nearby former metal parts manufacturer listed as a hazardous materials release site. Some risk of encountering aerially deposited lead and other metals in soil. Demolition of existing structures may encounter asbestos, lead-paint, and other hazardous materials	It is expected that no hazardous materials will be encountered in the soil and/or groundwater. Some risk of encountering aerially deposited lead and other metals in soil. Demolition of existing structures may encounter asbestos, lead-paint, and other hazardous materials.	Construction may encounter contaminated groundwater if it extends 30 feet below ground level. The station is located within the San Fernando Valley Superfund Area 2, which has groundwater contaminated by volatile organic compounds. The existing Metrolink Station is an active Corrective Action site as of 2008. Reportedly, a Corrective Measures Study Report is due to the DTSC in April 2011. Potential media affected is reported as indoor air, groundwater, soil, surface water, and soil vapor. Some risk of encountering aerially deposited lead and other metals in soil. Demolition of existing structures may encounter asbestos, lead-paint, and other hazardous materials

SR 2 to Sylmar Subsection Stations – Evaluation Matrix					
Evaluation Measure	Alternative BVS Buena Vista Station Location (Carried Forward)	Alternative BSS Branford Street Station Location (Carried Forward)	Alternative PWS Pacoima Wash Station Location (Not Carried Forward)	Alternative SFS San Fernando Station Location (Carried Forward)	Alternative BMS Burbank Metrolink Station Location (Not Carried Forward)
Agency and Public Input					
Agency and Public Input	Metro, the City of Burbank and the Bob Hope Airport Authority requested a study of a possible station option near the airport. The city does not want an HST station to disrupt their community via right-of-way encroachment into neighborhoods nor do they want the downtown Metrolink station moved. The city stated that the HST station should minimize cut-through traffic between SR 134 and I-5. All the above parties are supportive of the proposed station at the Burbank Airport. There is support in the San Fernando Valley for a one station concept providing it has good intermodal connectivity for public transit and road access.	The Mayor’s office, Metro, Councilmember Alarcon, and the City of Los Angeles prefer a station option in the City of LA. The Mayor’s office has expressed concern over a Branford location as there is a planned and funded “live/work” development, creating 400 jobs, in the vicinity of the proposed station site. CHSTP has held an initial meeting with the Mayor’s office and developer to review the development possibilities that may be available at this site, and how they may co-locate with a HST station. There is concern about access and local intermodal connectivity to the station option. There is support in the San Fernando Valley for a one station concept providing it has good intermodal connectivity for public transit and road access.	The City of Los Angeles valley planners and the Mayor’s office were in favor of this option because it is a CRA enterprise zone and has good freeway access. However they recognize that the technical challenges and impacts make it infeasible. There is support in the San Fernando Valley for a one station concept providing it has good intermodal connectivity for public transit and road access.	The City of San Fernando is supportive of CHSTP, acknowledges the impact that the right-of-way required would have upon their city, and thereby supports a station location in San Fernando, believing the impact to be positive to the community in allowing for growth and TOD. The City of Los Angeles is concerned that there is not great access to this station. There is support in the San Fernando Valley for a one station concept providing it has good intermodal connectivity for public transit and road access.	Meetings with City of Burbank staff confirmed their agreement that this option should not be carried forward and their strong preference for a Burbank Buena Vista station.

APPENDIX B - OUTREACH MEETINGS

Briefings

Corridor Cities		
City of Los Angeles, Technical Working Group	February 9, 2011	Reviewed alignment alternatives and station location options.
City of Palmdale	February 9, 2011	Reviewed alignment alternatives and station location options.
City of Los Angeles, Valley Working Group	February 8, 2011	Reviewed alignment alternatives and station location options.
City of San Fernando	February 3, 2011	Reviewed alignment alternatives and station location options.
City of Glendale	February 2, 2011	Reviewed alignment alternatives and station location options.
Acton/Agua Dulce Working Group	January 18, 2011	Reviewed alignment alternatives.
City of Santa Clarita	January 5, 2011	Reviewed alignment alternatives.
City of San Fernando	November 15, 2010	Reviewed station block diagrams.
Town of Acton – Key stakeholders	November 12, 2010	Reviewed alignment alternatives.
City of Burbank	November 10, 2010	Reviewed station block diagrams.
City of San Fernando	October 28, 2010	Reviewed station block diagrams.
City of Burbank	October 28, 2010	Reviewed station block diagrams.

Acton/Agua Dulce Working Group	October 25, 2010	Reviewed project and alignment alternatives through Acton and Agua Dulce.
City of San Fernando	October 20, 2010	Reviewed station block diagrams.
City of Los Angeles, Department of Planning	October 13, 2010	Reviewed alignment alternatives. Preference is T1 alignment – ensure accessibility to the parks near Cornfields and Rio de Los Angeles.
San Fernando Valley Working Group	September 9, 2010	Reviewed Preliminary AA and grade crossings throughout the city of Los Angeles and station location options.
City of Santa Clarita Study Session	September 9, 2010	Provided Preliminary AA update and responded to questions and concerns from the Councilmembers.
City of Santa Clarita staff	August 31, 2010	Reviewed Preliminary AA and prepared for City Council Study Session.
Los Angeles Technical Working Group (P-LA section attendees: City of Los Angeles planners, LADOT, Metrolink, Metro, State Parks, NRDC)	August 31, 2010	Reviewed southern California sections as they relate to Los Angeles Union Station.
Acton/Agua Dulce Unified School District	August 30, 2010	Reviewed revised alignment alternatives to show no impacts to schools and discussed possible California Department of Education issues.
City of Burbank staff briefing	August 24, 2010	Update on station location options in Burbank.
City of San Fernando	July 22, 2010	Reviewed station options in the San Fernando Valley.
City of Glendale	July 22, 2010	Discussed right-of-way and grade crossings; future development plans;

		collaboration regarding grade crossings.
Acton/Agua Dulce Unified School District Meeting	July 12, 2010	Discussed new and existing school alignment impacts and construction timelines.
Local, State and Federal Agency Briefings		
Metro	January 13, 2011	Reviewed station location options.
Los Angeles Department of Water and Power	December 9, 2010	Discussed major LADWP utility crossings.
FAA/Los Angeles ADO	November 8, 2010	Reviewed Whiteman Airport ROW.
Metro/ODLA	October 13, 2010	Briefing on OLDA Burbank Airport Ground Access Study and Metro's proposed transit corridors in Burbank Airport area.
Army Corp of Engineers	October 6, 2010	Southern California section review including LA River crossings.
Palmdale Water District	September 22, 2010	Reviewed alignments and station location options.
Sempra Energy	September 22, 2010	Reviewed project.
SCAG	September 7, 2010	Reviewed SCAG, Metro and OCTA coordination efforts with regard to Los Angeles Union Station.
SCRRA/Metro	August 25, 2010	Discussed San Fernando Widening Project and HSR alignment proposals.
State Parks	August 6, 2010	Reviewed alignments through the State Historic Park and Rio de Los Angeles Park.
SCAG	September 7, 2010	Reviewed SCAG, Metro and OCTA coordination efforts with regard to Los Angeles Union

		Station.
Metro	July 13, 2010	Monthly coordination call to discuss upcoming events in southern California.
Community		
Downtown Los Angeles Neighborhood Council	February 1, 2011	Provided project overview to approximately 15 stakeholders.
Acton/Agua Dulce Business Groups	January 18, 2011	Provided project overview to approximately 30 stakeholders.
Santa Clarita School and Business Alliance	January 5, 2011	Provided overview to executive director.
Greater Griffith Park Neighborhood Council	December 21, 2010	Provided project overview to approximately 20 stakeholders.
Endangered Habitats League	December 21, 2010	Provided project overview to members.
North Area Neighborhood Development Council	December 2, 2010	Provided project overview to approximately 20 stakeholders.
Santa Clarita Economic Development Corporation	November 30, 2010	Provided project overview to Executive Director.
Dynamic Networking Alliance Santa Clarita Valley	November 18, 2010	Provided project overview to approximately 20 stakeholders.
HCNC	November 9, 2010	Provided project overview to approximately 30 stakeholders.
VICA Business Forecast	October 28, 2010	Provided project overview to approximately 25 stakeholders.
Arleta Neighborhood Council	October 19, 2010	Provided project overview to approximately 20 stakeholders.

Armenian Engineers and Scientists of America	October 12, 2010	Provided project overview to approximately 45 stakeholders.
Burbank Noon Kiwanis	September 22, 2010	Provided project overview to approximately 45 stakeholders.
NRDC/FOLAR	September 15, 2010	Reviewed alignment alternatives from LAUS to SR 2.
Canyon Country Advisory Committee	September 15, 2010	Provided project overview to approximately 50 stakeholders.
Northridge West Neighborhood Council	September 14, 200	Provided project overview to approximately 50 stakeholders.
Silverlake Neighborhood Council Transportation and Public Works Committee	September 13, 2010	Provided project overview to approximately 10 stakeholders.
Greater Cypress Park Neighborhood Council	September 2, 2010	Provided project overview to approximately 10 stakeholders.
Century City Rotary Club	September 1, 2010	Provided project overview to approximately 30 stakeholders.
The Transit Coalition	August 24, 2010	Provided project overview to approximately 30 stakeholders.
Sylmar Block Captains	August 19, 2010	Provided project overview to approximately 25 stakeholders.
Rampart Village Neighborhood Council	August 17, 2010	Provided project overview to approximately 12 stakeholders.
San Fernando Kiwanis Club	July 13, 2010	Provided project overview to approximately 15 stakeholders.
Elected Officials and Staff		
Supervisor Antonovich staff	February 4, 2011	Reviewed alignment

		alternatives and station location options.
Assemblymember Fuentes staff	January 25, 2011	Reviewed alignment alternatives and station location options in San Fernando Valley.
Councilmember Cardenas staff	January 26, 2011	Reviewed alignment alternatives and station location options in San Fernando Valley.
Senator Padilla staff	January 12, 2011	Reviewed station location options in San Fernando Valley.
Congressman Becerra staff	December 21, 2010	Reviewed outreach in community.
Councilmember LaBonge and staff	December 10, 2010	Reviewed grade crossings.
Councilmember LaBonge staff	November 23, 2010	Reviewed grade crossings.
Supervisor Antonovich staff	September 14, 2010	Reviewed SAA with staff.
Congressman Becerra and staff	August 25, 2010	Provided statewide, regional and section-specific overview.
Councilmember Cardenas staff	August 24, 2010	Discussed station location options.
Alignment tour with Assemblymember Galgiani	July 9, 2010	Tour to review alignment alternatives and station location options.
Environmental Justice		
Bus Riders Union	December 8, 2010	Provided project overview to members.
Concerned Citizens of South Los Angeles	December 7, 2010	Provided project overview to Executive Director and Community Redevelopment Agency representative.
Pacoima Beautiful	October 20, 2010	Provided project overview to Initiative Coordinator.
Environmental Priorities Networks	October 7, 2010	Provided project overview to approximately 12 stakeholders.

Activity Centers		
Mobility 21	October 29, 2010	Engaged with approximately 50 stakeholders.
CMAA Owner’s Night	October 14, 2010	Engaged with approximately 50 stakeholders.
Downtown 2010 Symposium	October 12, 2010	Engaged with approximately 30 stakeholders.
Nisei Week Festival	August 14 – 15, 2010	Engaged with approximately 200 stakeholders.
Venice Beach Eco Fest	July 10, 2010	Engaged with approximately 100 stakeholders.
Community Open Houses		
Downtown Los Angeles	September 21, 2010	Shared alignment alternatives and station location options to more than 300 stakeholders.
Santa Clarita	August 26, 2010 – Santa Clarita Sports Complex	Shared alignment alternatives and station location options to more than 30 stakeholders.
Burbank	August 25, 2010 – Buena Vista Library	Shared alignment alternatives and station location options to more than 100 stakeholders and elected officials.
Palmdale	August 23, 2010 – Chimbole Center	Shared alignment alternatives and station location options to more than 50 stakeholders.

APPENDIX C - PLAN AND PROFILE DRAWINGS

Revised drawings have been included in this report, for the following alternatives

LAUS to SR 2 – LAPT1, LAPT3, LAP1C

SR 2 to Sylmar – Burbank Metrolink Station (new drawings)

For drawings of other alternatives see Appendix D of the *July 2010 Preliminary AA report*.

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SHT DWG No. TITLE

GENERAL SHEETS

1	LAP-CB0000	COVER SHEET
	LAP-CB0101	DRAWING INDEX
2	LAP-CB0102	UNCHANGED - SEE PRELIMINARY AA

LAUS TO SR-2 ALTERNATIVE "LAPT1"

1	LAP-CB1110	PLAN AND PROFILE	STA 279+84	TO STA 310+00
2	LAP-CB1111	PLAN AND PROFILE	STA 310+00	TO STA 360+00
3	LAP-CB1112	PLAN AND PROFILE	STA 360+00	TO STA 410+00
4	LAP-CB1113	PLAN AND PROFILE	STA 410+00	TO STA 460+00
5	LAP-CB1114	PLAN AND PROFILE	STA 460+00	TO STA 520+00

LAUS TO SR-2 ALTERNATIVE "LAPT2"

1	LAP-CB1210	} UNCHANGED - SEE PRELIMINARY AA
2	LAP-CB1211	
3	LAP-CB1212	
4	LAP-CB1213	
5	LAP-CB1214	

LAUS TO SR-2 ALTERNATIVE "LAPT3"

1	LAP-CB1310	PLAN AND PROFILE	STA 276+75	TO STA 310+00
2	LAP-CB1311	PLAN AND PROFILE	STA 310+00	TO STA 360+00
3	LAP-CB1312	PLAN AND PROFILE	STA 360+00	TO STA 410+00
4	LAP-CB1313	PLAN AND PROFILE	STA 410+00	TO STA 460+00
5	LAP-CB1314	PLAN AND PROFILE	STA 460+00	TO STA 520+00

LAUS TO SR-2 ALTERNATIVE "LAP1C"

1	LAP-CB1610	PLAN AND PROFILE	STA 252+35	TO STA 290+00
2	LAP-CB1611	PLAN AND PROFILE	STA 290+00	TO STA 340+00
3	LAP-CB1612	PLAN AND PROFILE	STA 340+00	TO STA 400+00
4	LAP-CB1613	PLAN AND PROFILE	STA 400+00	TO STA 460+00
5	LAP-CB1614	PLAN AND PROFILE	STA 460+00	TO STA 520+00

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3	LAP-CB2203	
4	LAP-CB2204	
5	LAP-CB2205	
6	LAP-CB2206	
7	LAP-CB2207	
8	LAP-CB2208	
9	LAP-CB2209	
10	LAP-CB2210	
11	LAP-CB2211	
12	LAP-CB2212	
13	LAP-CB2213	
14	LAP-CB2214	
15	LAP-CB2215	
16	LAP-CB2216	
17	LAP-CB2217	

BURBANK BUENA VISTA STATION ALTERNATIVE "BVS"

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2	LAP-CB2309	
3	LAP-CB2310	

BRANFORD STREET STATION ALTERNATIVE "BSS"

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3	LAP-CB2414	

PACOIMA WASH STATION ALTERNATIVE "PWS"

1	LAP-CB2514	} UNCHANGED - SEE PRELIMINARY AA
2	LAP-CB2515	
3	LAP-CB2516	

SHT DWG No. TITLE

SYLMAR/SAN FERNANDO STATION ALTERNATIVE "SFS"

1	LAP-CB2615	} UNCHANGED - SEE PRELIMINARY AA
2	LAP-CB2616	
3	LAP-CB2617	

BURBANK METROLINK STATION ALTERNATIVE "BMS"

1	LAP-CB2704	PLAN AND PROFILE	STA 670+00	TO STA 730+00
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3	LAP-CB2706	PLAN AND PROFILE	STA 790+00	TO STA 850+00
4	LAP-CB2707	PLAN AND PROFILE	STA 850+00	TO STA 910+00

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4	LAP-CB3103	
5	LAP-CB3104	
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7	LAP-CB3106	
8	LAP-CB3107	
9	LAP-CB3108	
10	LAP-CB3109	
11	LAP-CB3110	
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13	LAP-CB3112	
14	LAP-CB3113	
15	LAP-CB3114	
16	LAP-CB3115	

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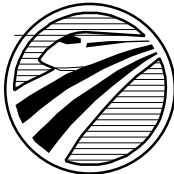
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15	LAP-CB3214	

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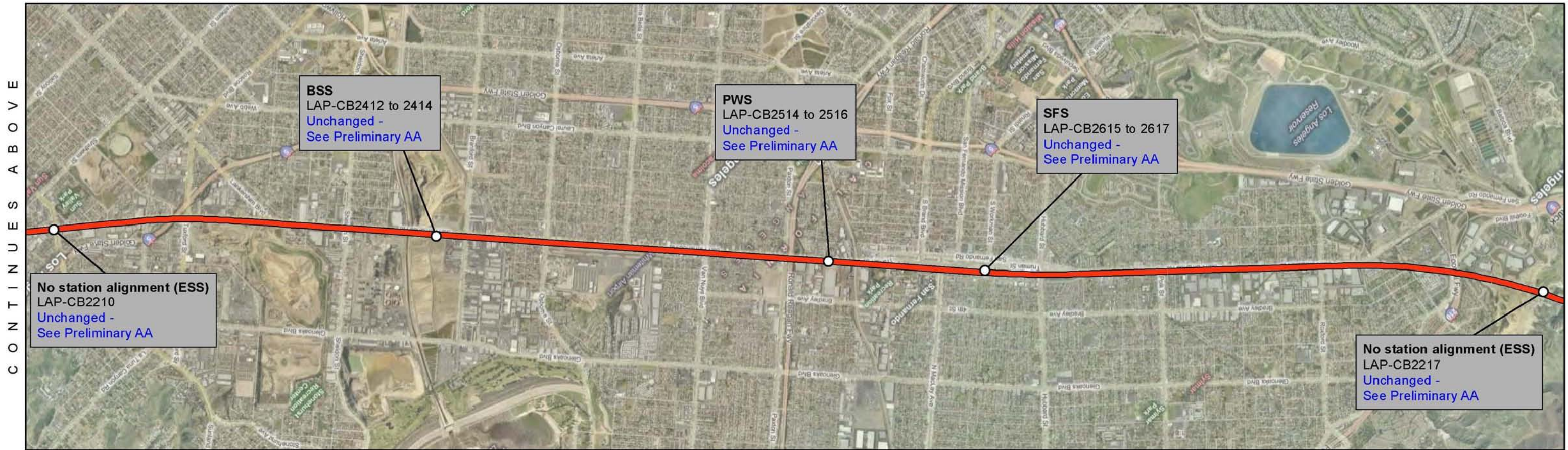
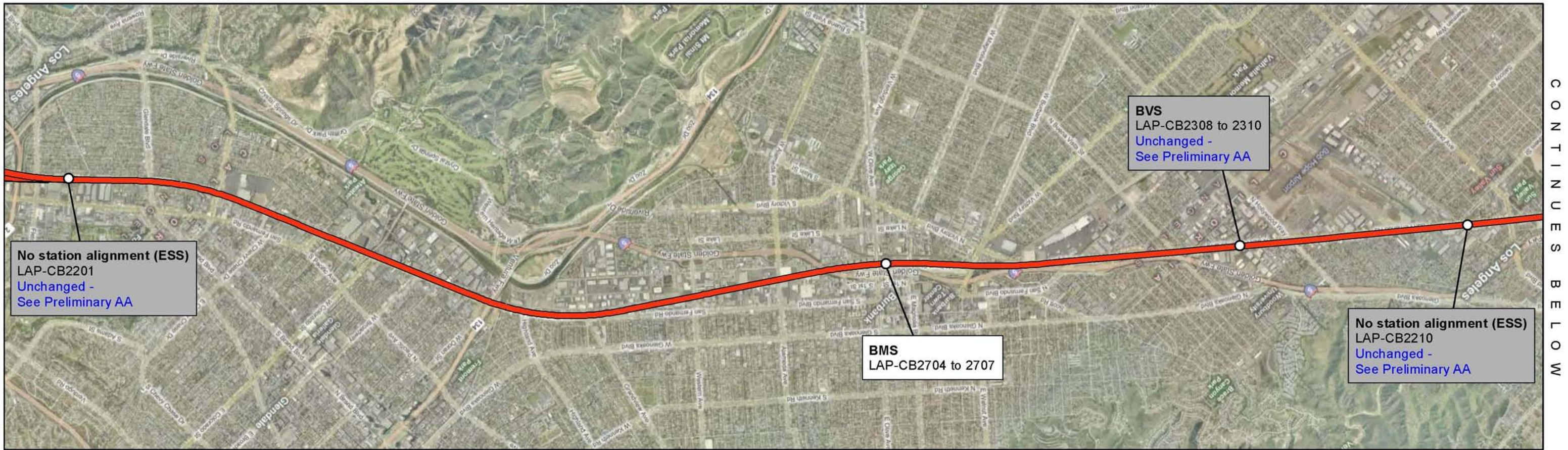
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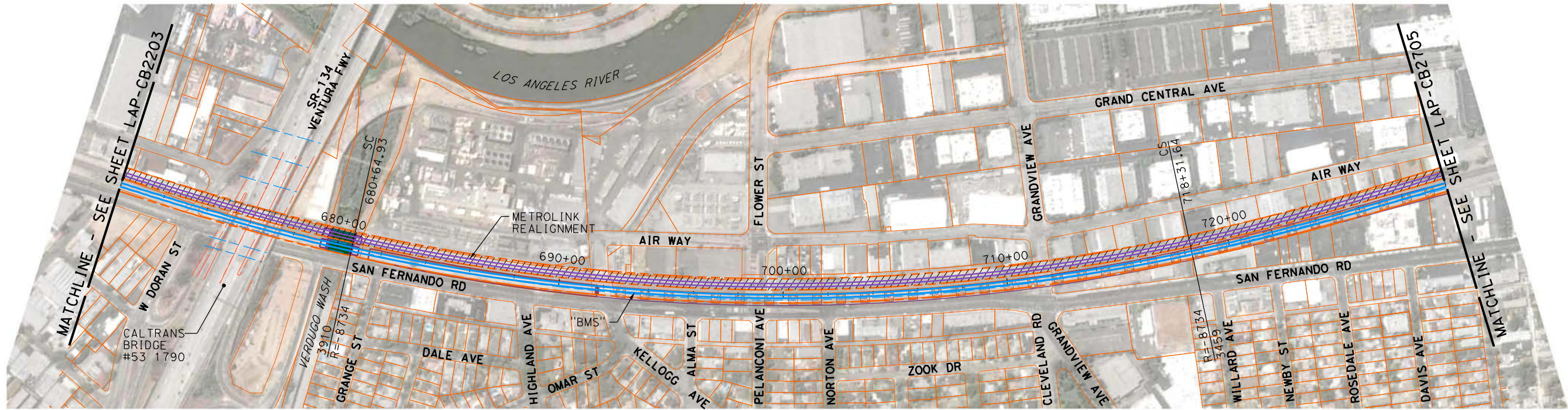


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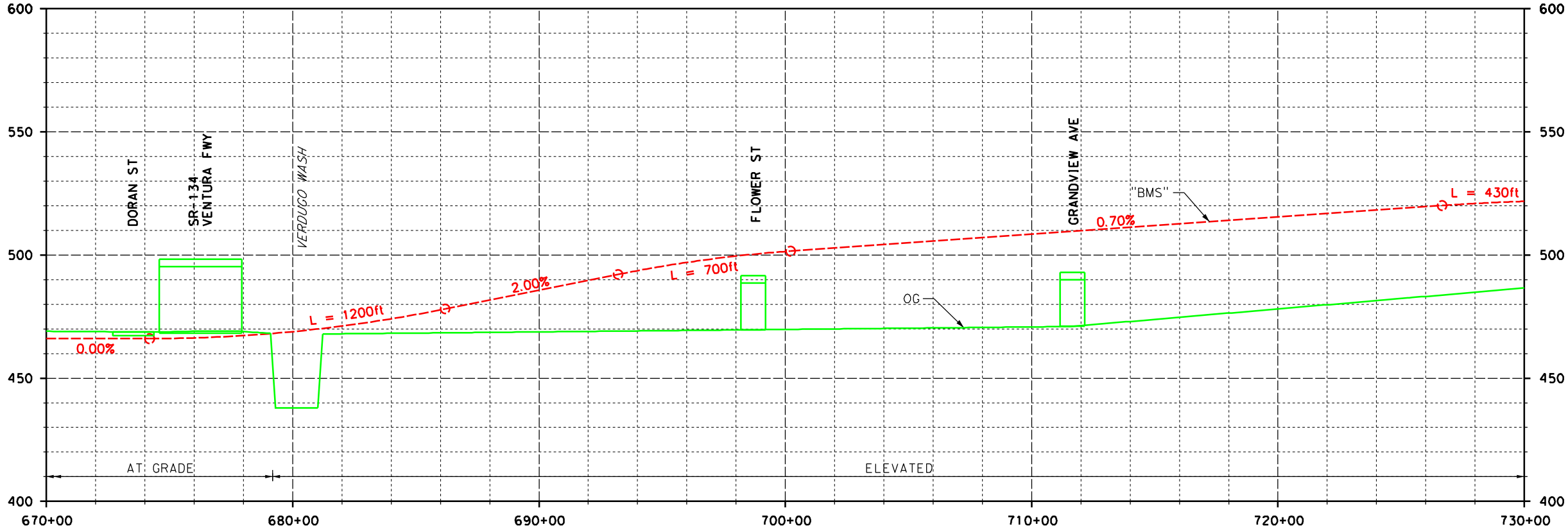
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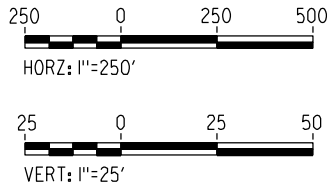
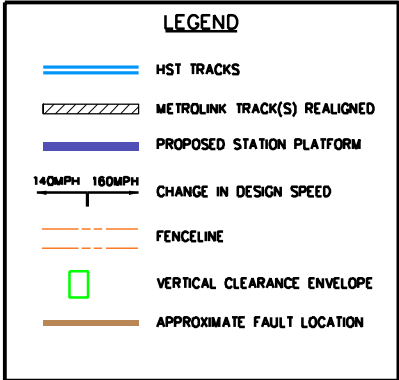
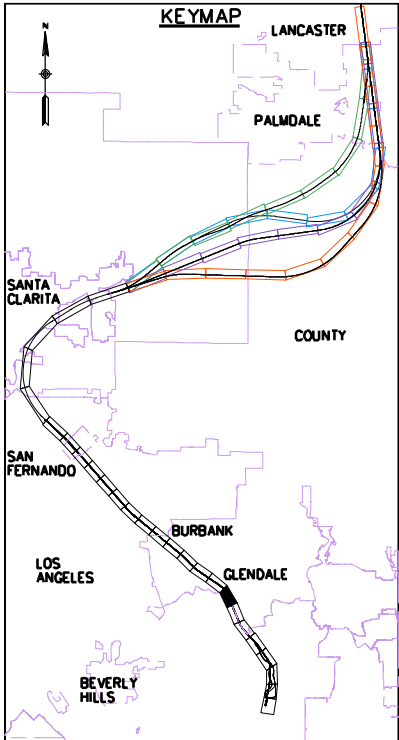




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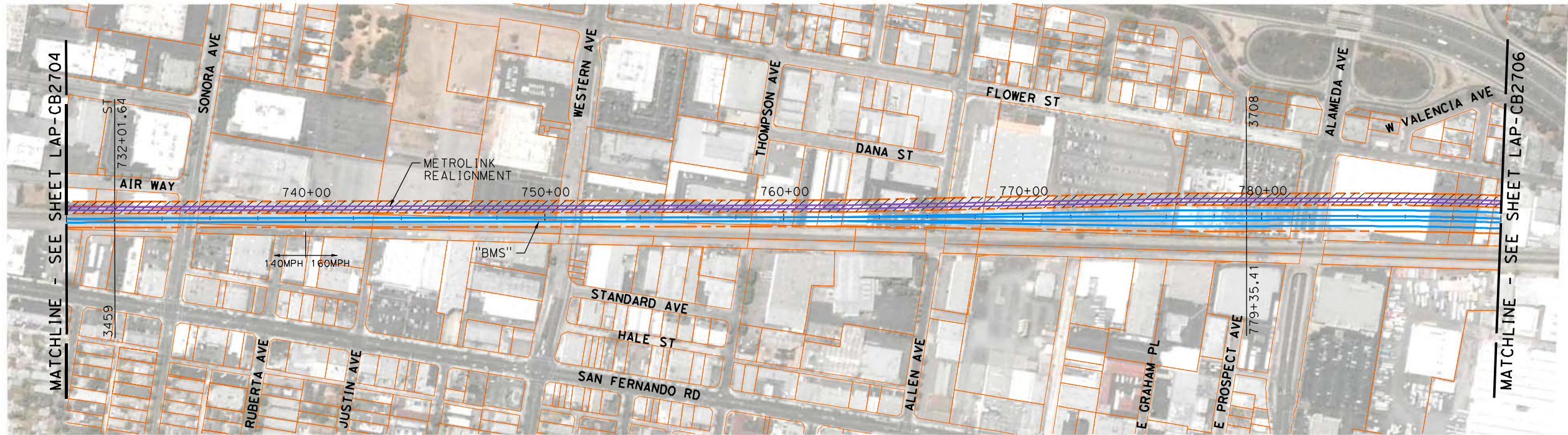


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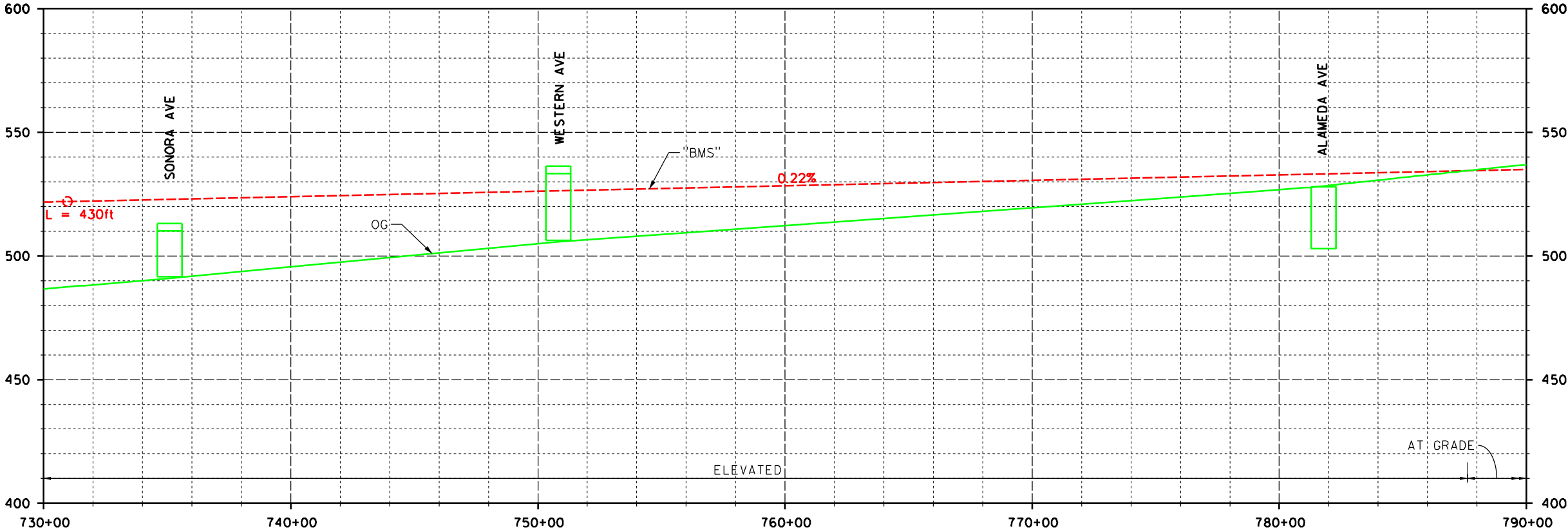
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PALMDALE TO LOS ANGELES**

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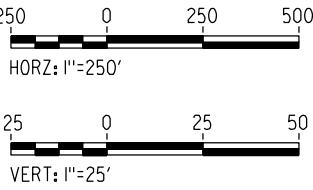
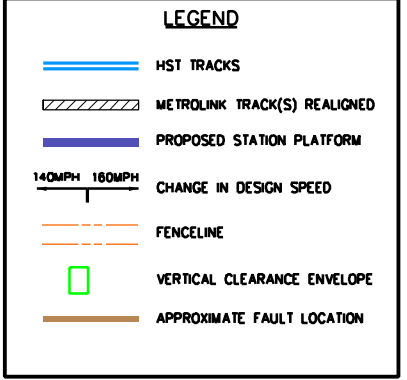
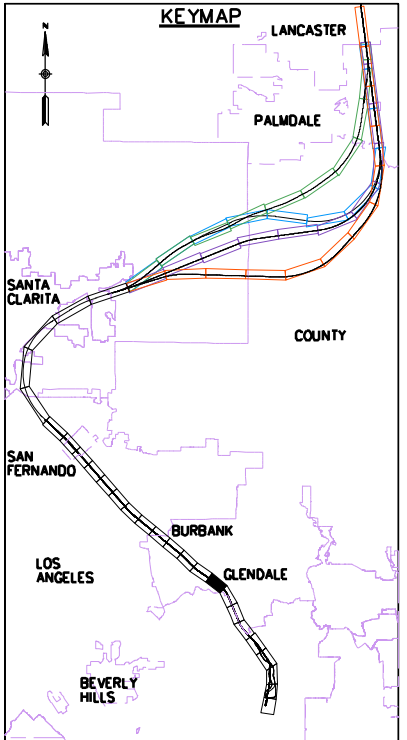
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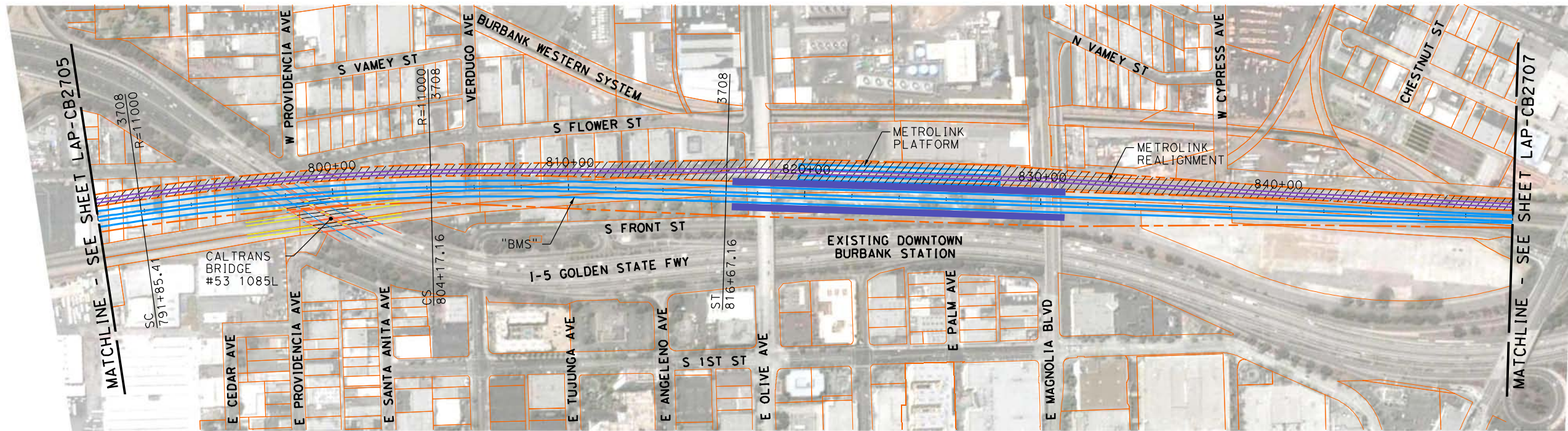
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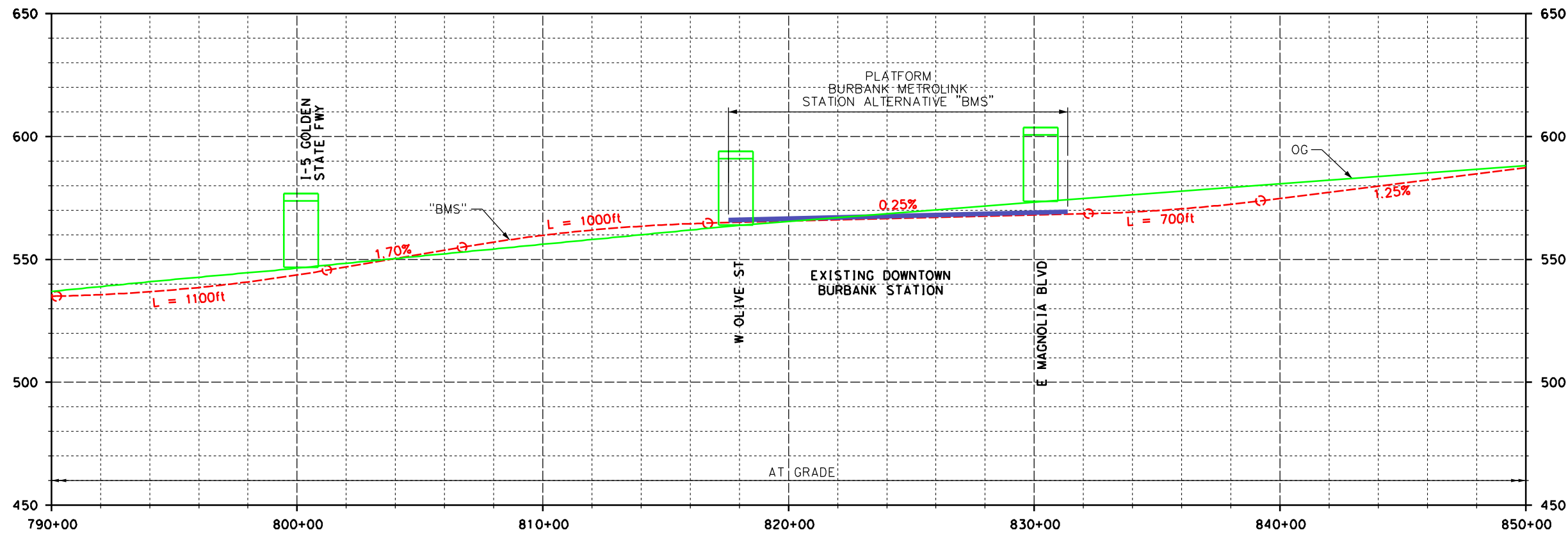
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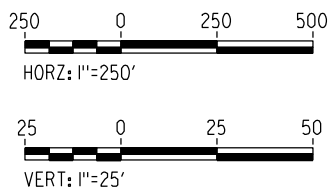
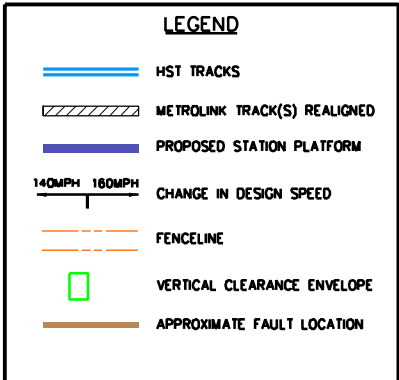
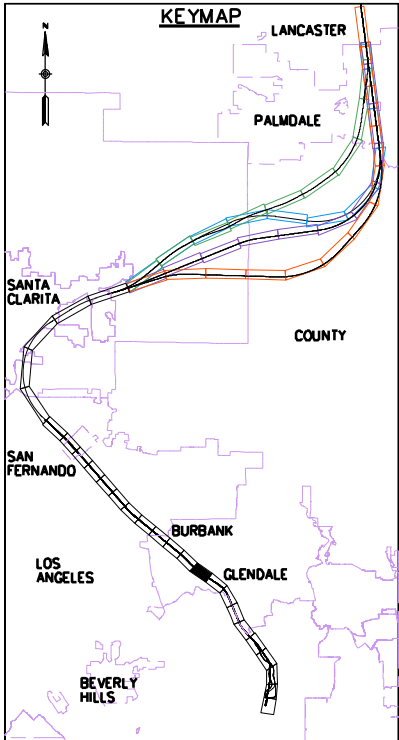
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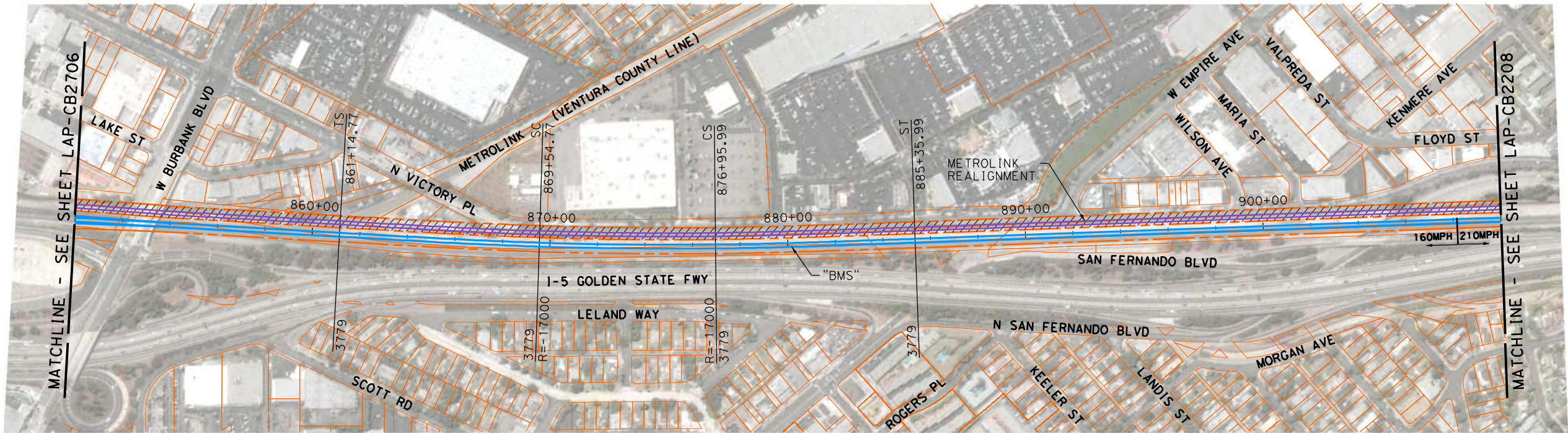


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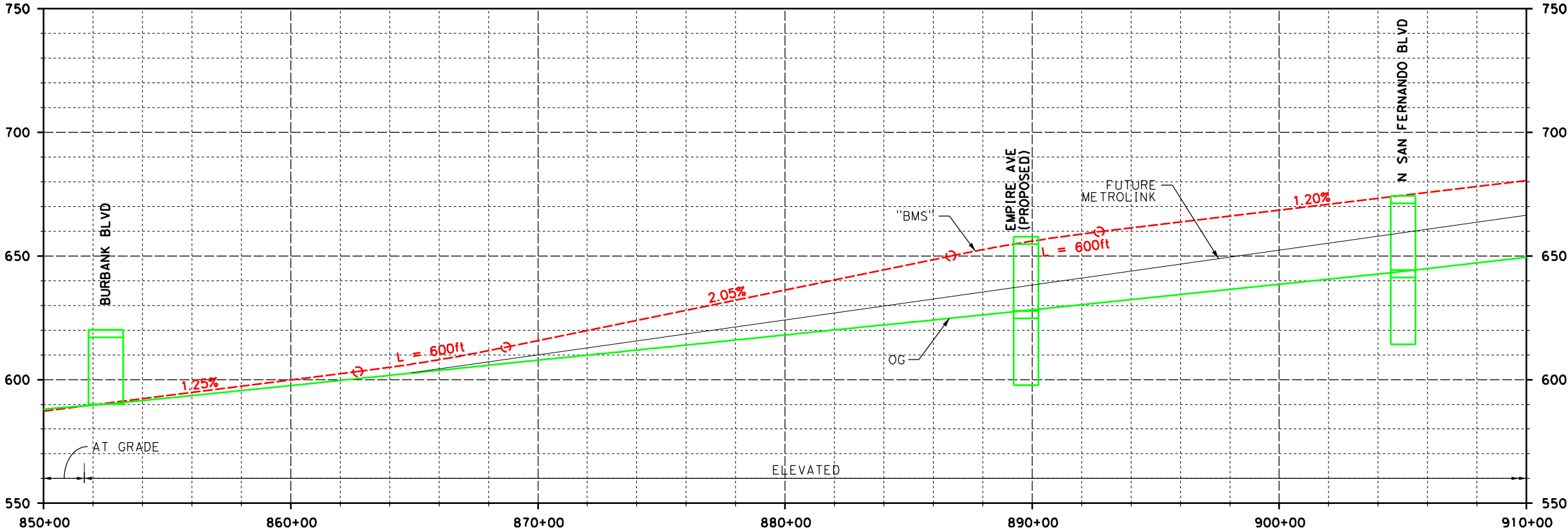
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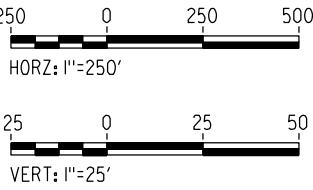
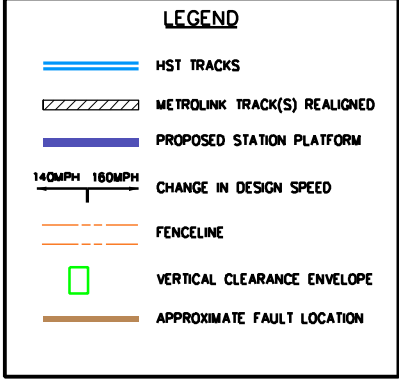
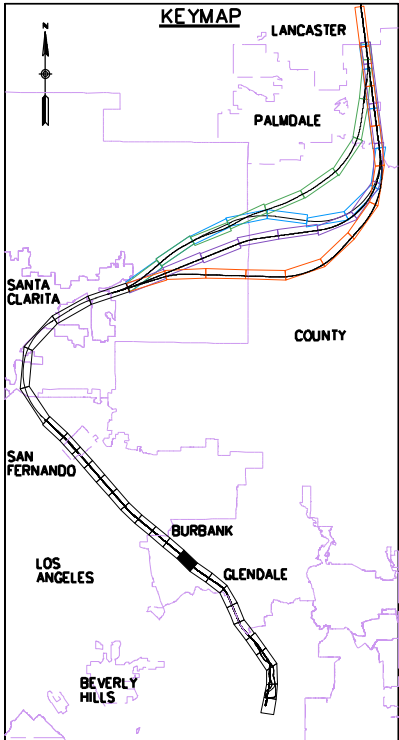
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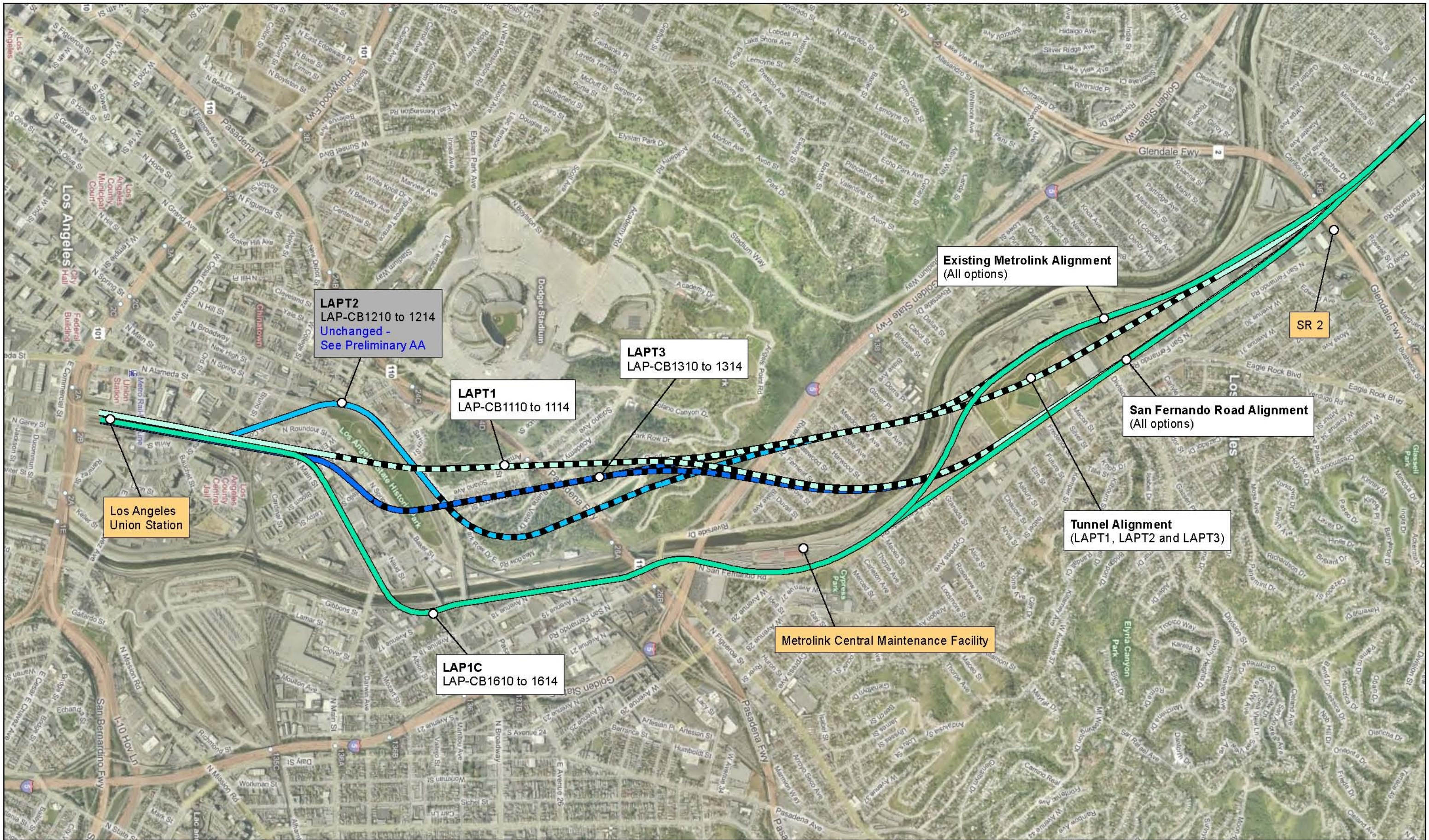


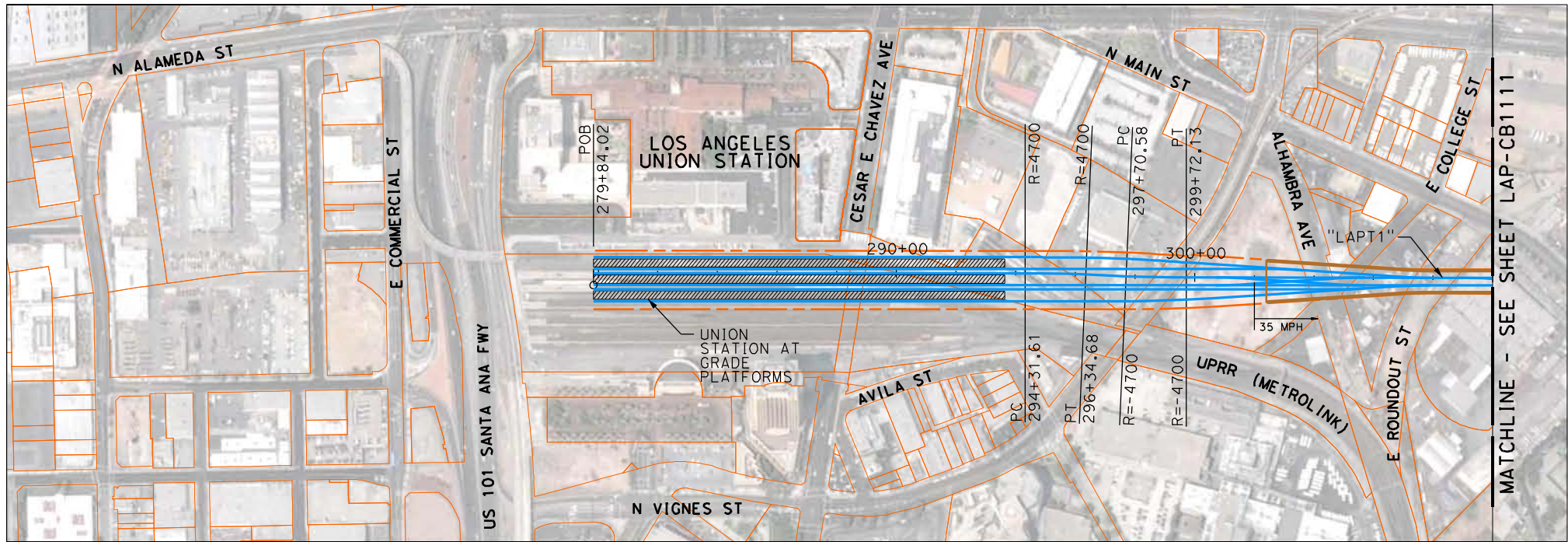
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PALMDALE TO LOS ANGELES**

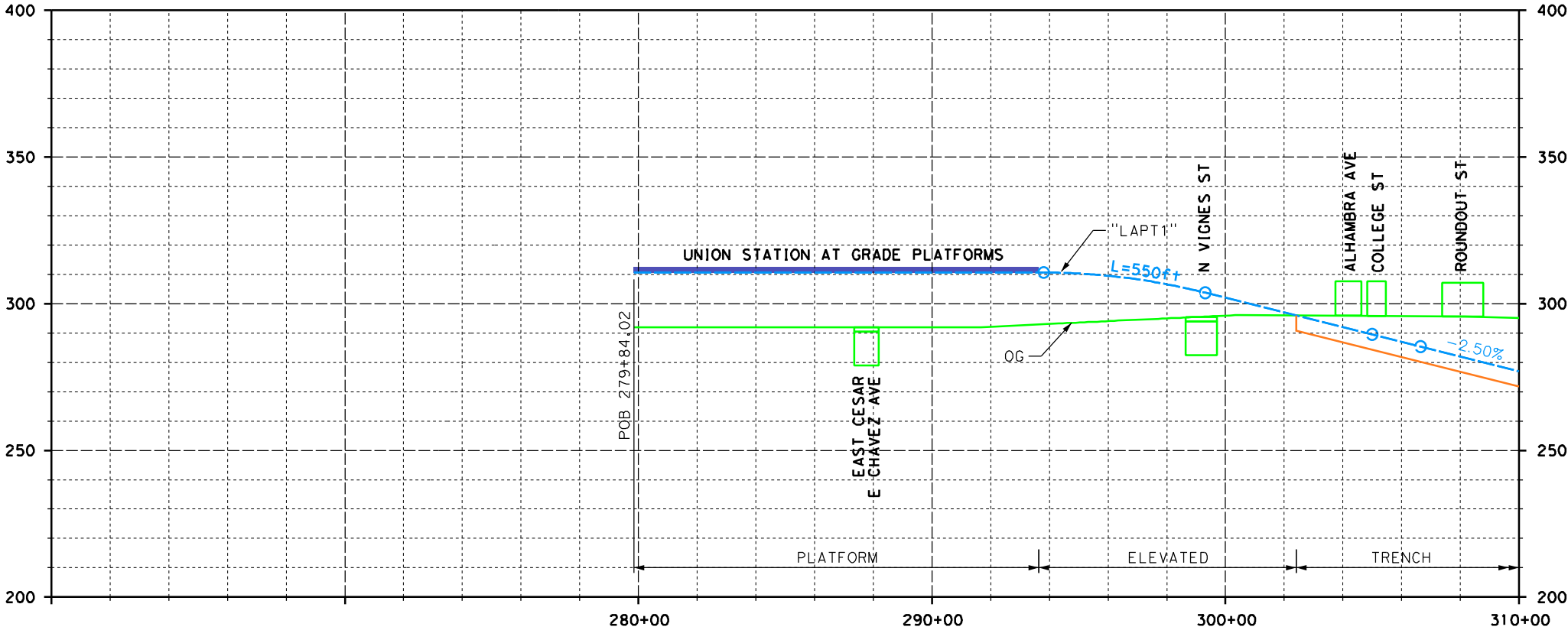
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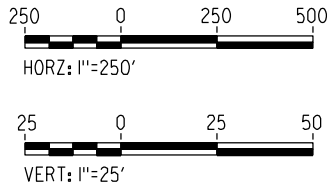
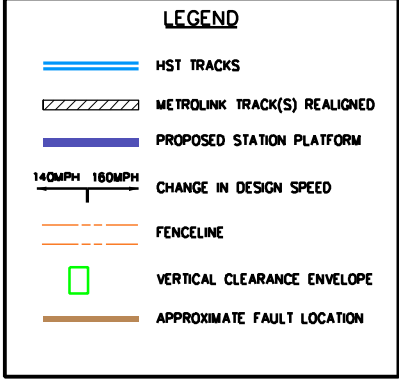
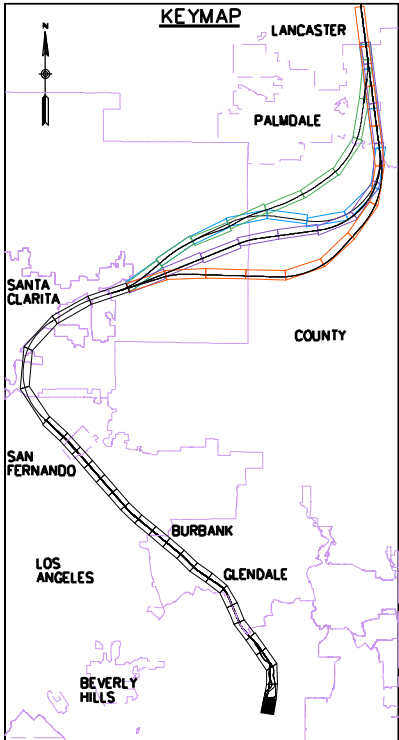




PLAN



PROFILE



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REV	DATE	BY	CHK	APP	DESCRIPTION
A	10/07/10	FC	JE	NC	UPDATED FOR SUPPLEMENTAL ALTERNATIVE ANALYSIS

DESIGNED BY J. LANGHAM
DRAWN BY J. REILLY
CHECKED BY N. CARSTAIRS
IN CHARGE R. HOLMQUIST
DATE 07/02/2010



Hatch Mott MacDonald, URS, & Arup
A HIGH-SPEED RAIL JOINT VENTURE

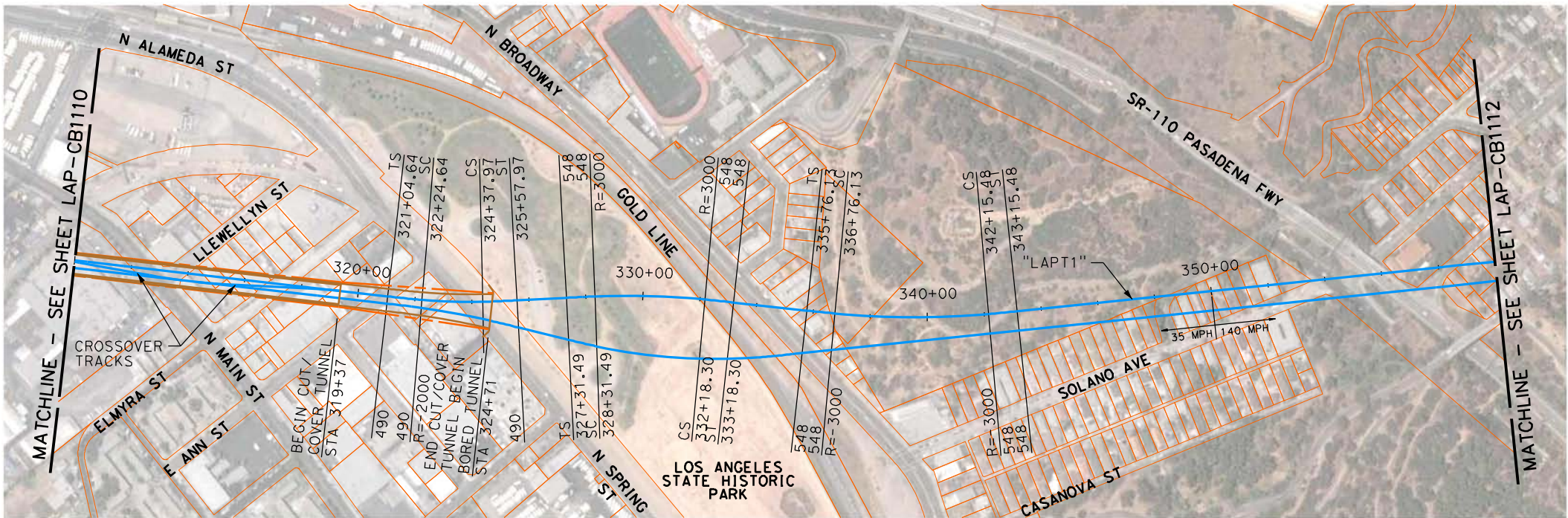


CALIFORNIA
HIGH-SPEED RAIL AUTHORITY

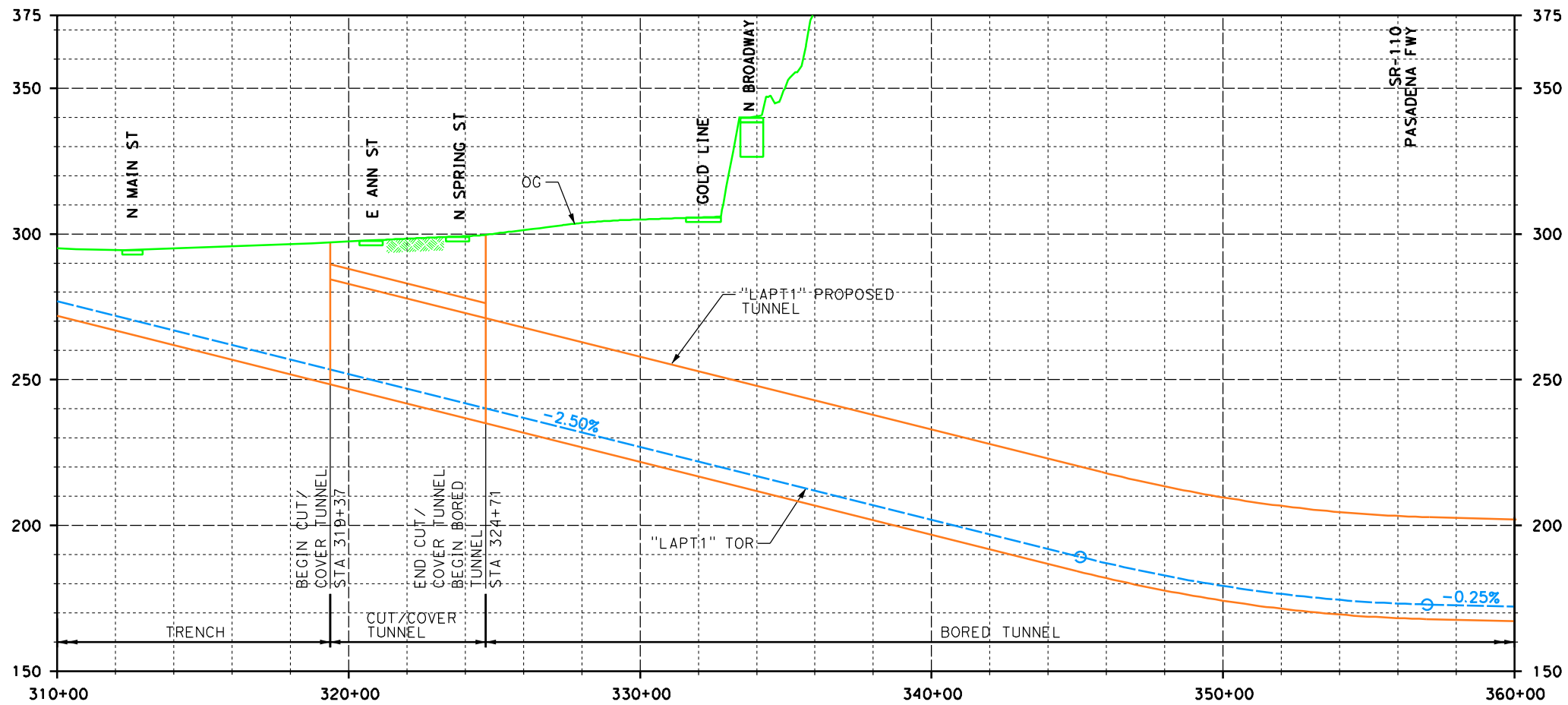
CALIFORNIA HIGH-SPEED TRAIN PROJECT
PALMDALE TO LOS ANGELES

ALTERNATIVES ANALYSIS
LAUS TO SR-2 - "LAPT1"
PLAN AND PROFILE
STA 279+67 TO 310+00

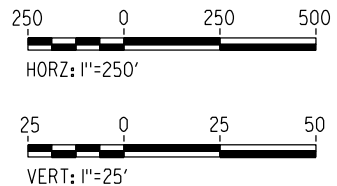
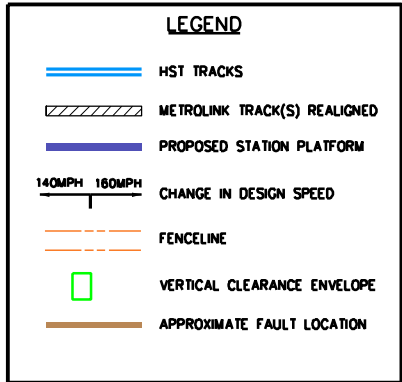
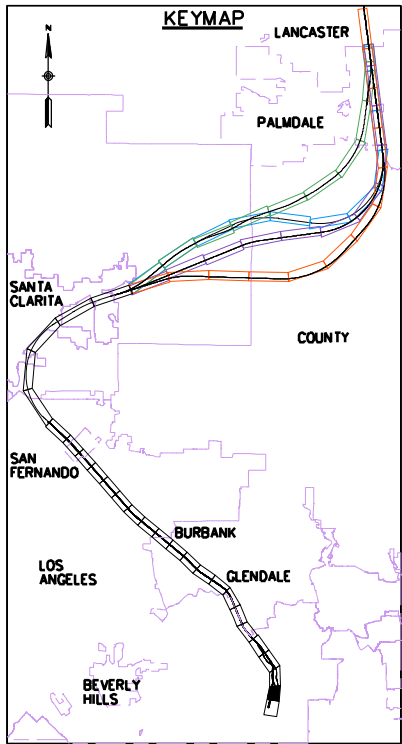
CONTRACT NO.
DRAWING NO. LAP-CB1110
SCALE
SHEET NO. 1 OF 5



PLAN



PROFILE



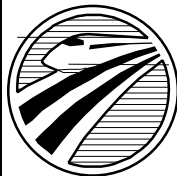
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REV	DATE	BY	CHK	APP	DESCRIPTION
A	10/07/10	FC	JE	NC	UPDATED FOR SUPPLEMENTAL ALTERNATIVE ANALYSIS

DESIGNED BY J. LANGHAM
DRAWN BY J. REILLY
CHECKED BY N. CARSTAIRS
IN CHARGE R. HOLMQUIST
DATE 07/02/2010



Hatch Mott MacDonald, URS, & Arup
A HIGH-SPEED RAIL JOINT VENTURE



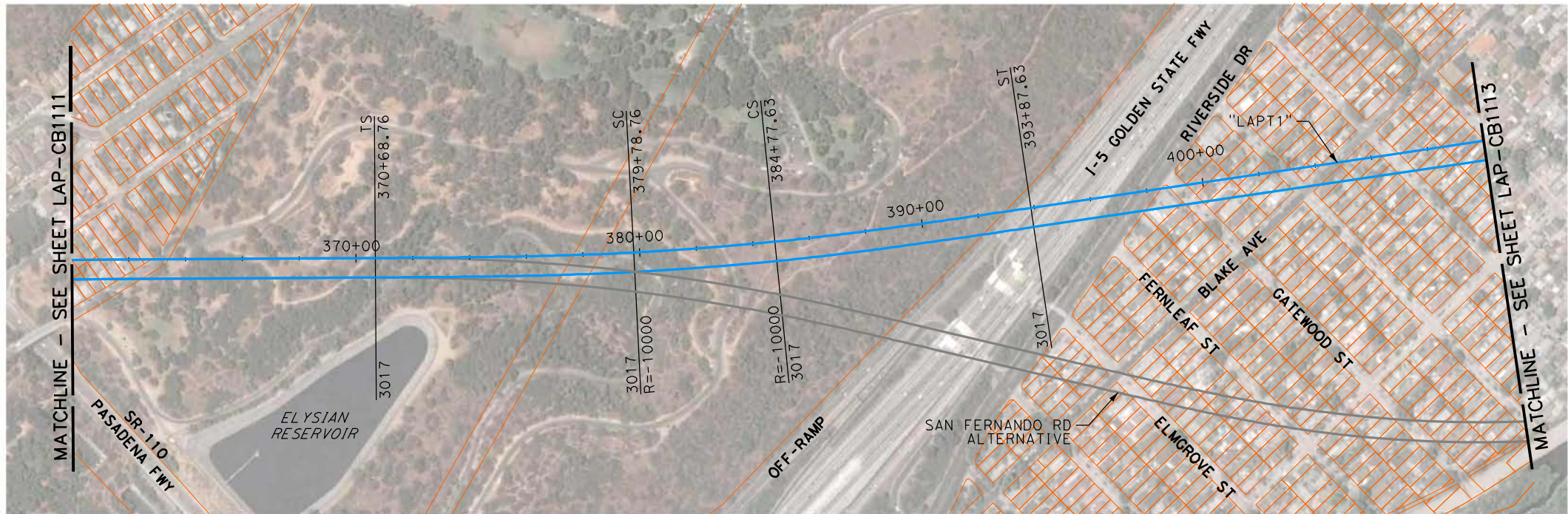
CALIFORNIA
HIGH-SPEED RAIL AUTHORITY

CALIFORNIA HIGH-SPEED TRAIN PROJECT PALMDALE TO LOS ANGELES

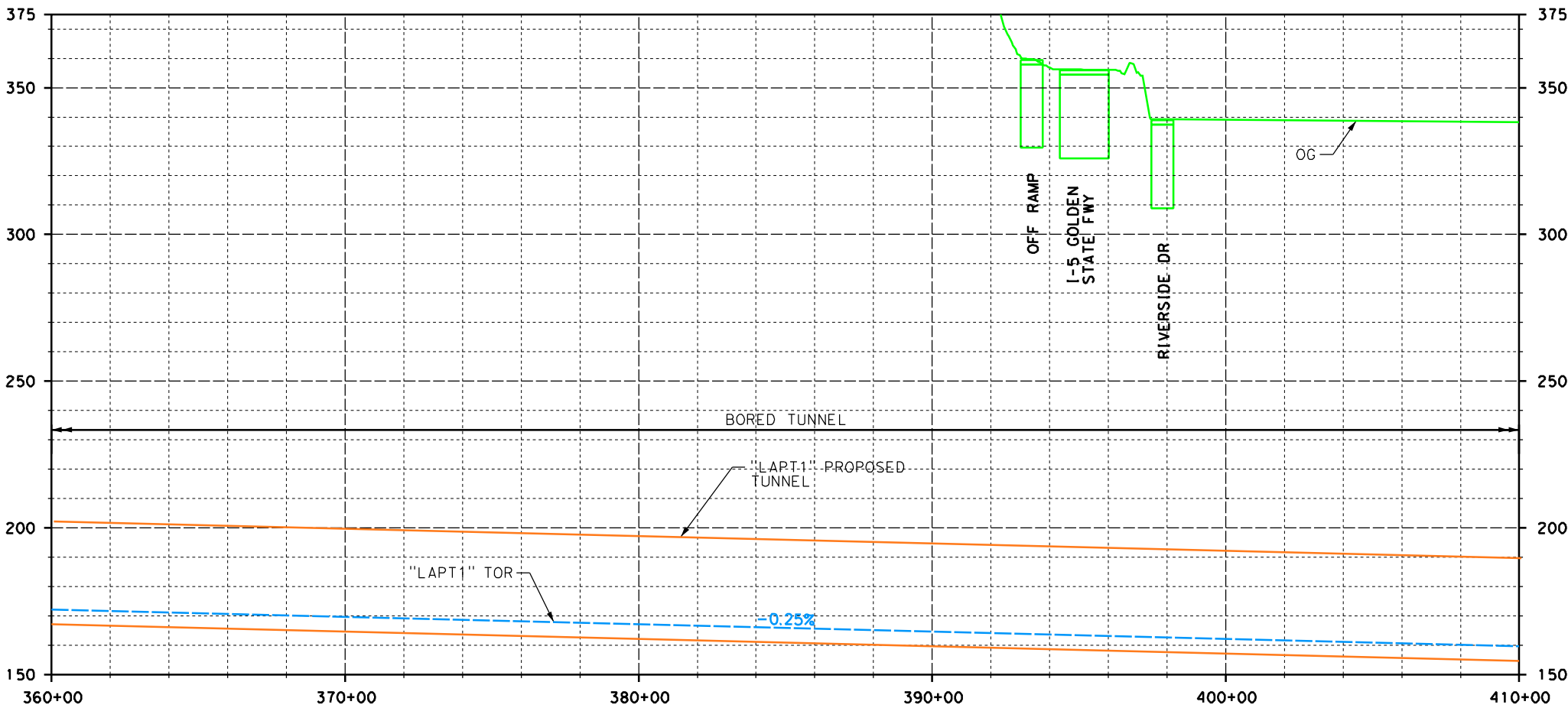
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LAUS TO SR-2 - "LAPT1"
PLAN AND PROFILE
STA 310+00 TO 360+00

CONTRACT NO.
DRAWING NO. LAP-CB1111
SCALE AS SHOWN
SHEET NO. 2 OF 5

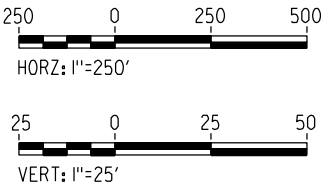
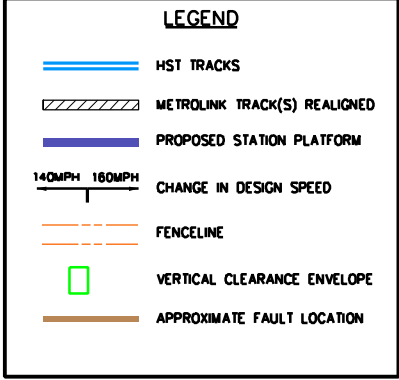
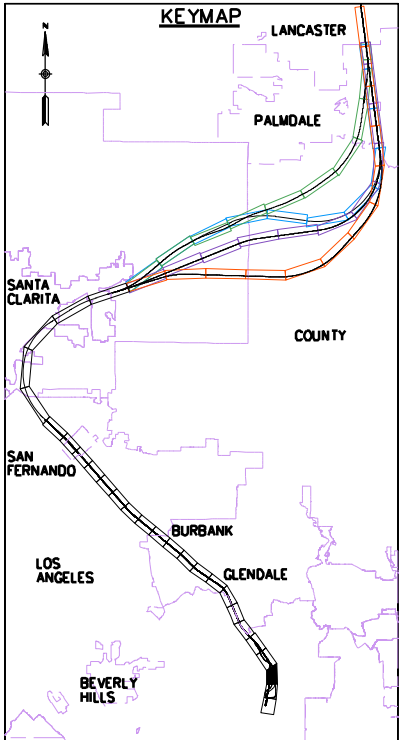
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PLAN



PROFILE



REV	DATE	BY	CHK	APP	DESCRIPTION
A	10/07/10	FC	JE	NC	UPDATED FOR SUPPLEMENTAL ALTERNATIVE ANALYSIS

DESIGNED BY
J. LANGHAM
DRAWN BY
J. REILLY
CHECKED BY
N. CARSTAIRS
IN CHARGE
R. HOLMQUIST
DATE
07/02/2010

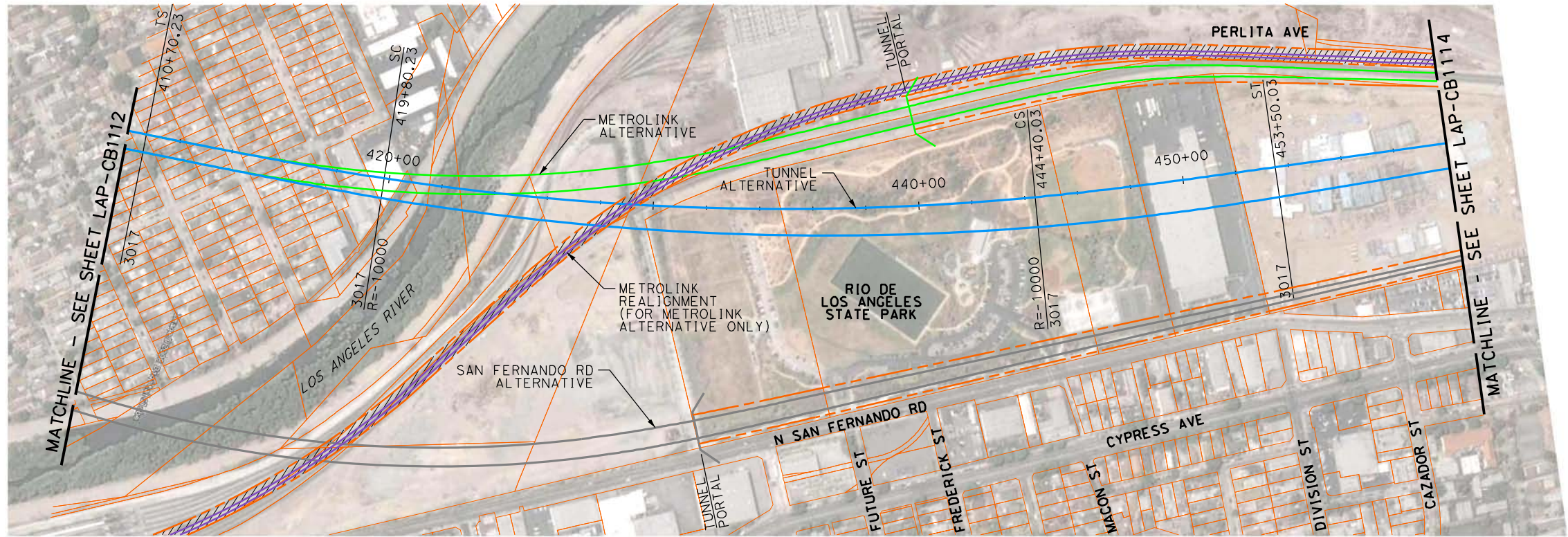


**CALIFORNIA HIGH-SPEED TRAIN PROJECT
PALMDALE TO LOS ANGELES**

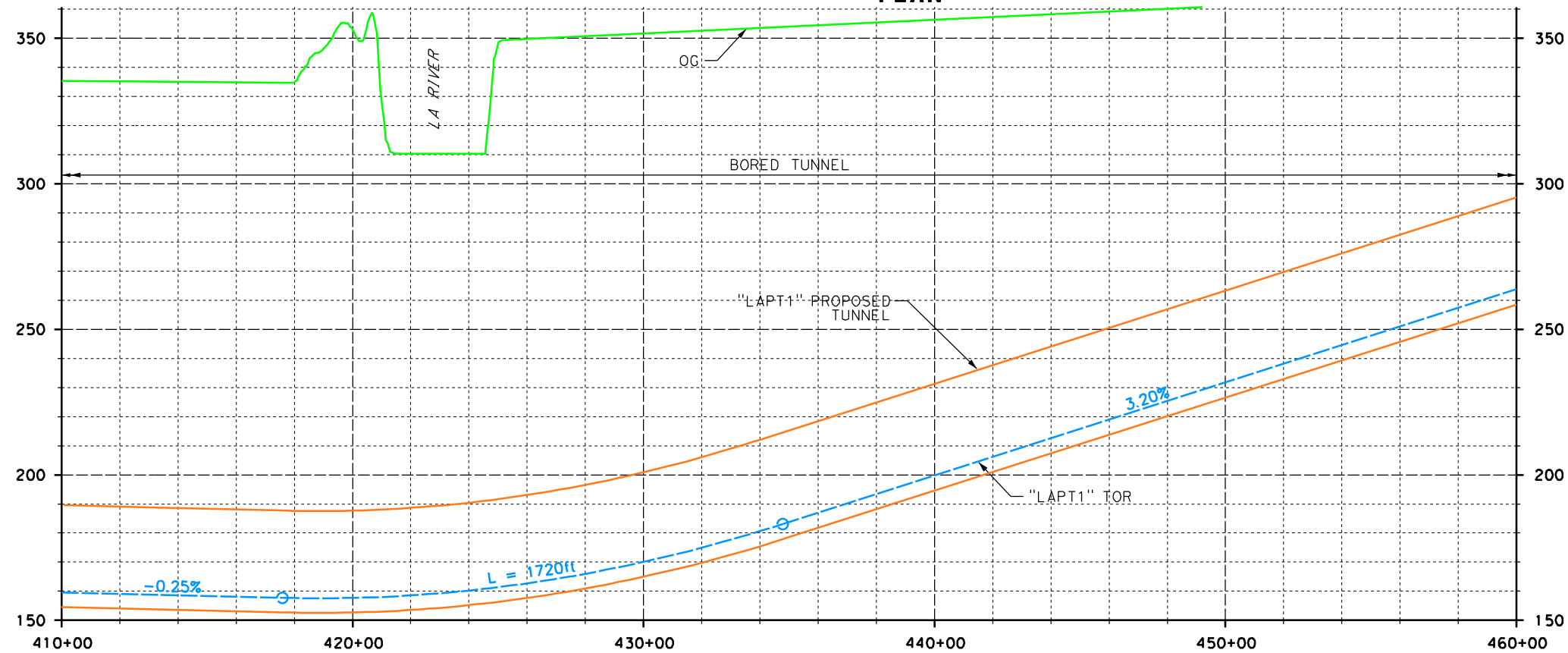
ALTERNATIVES ANALYSIS
LAUS TO SR-2 - "LAPT1"
PLAN AND PROFILE
STA 360+00 TO 410+00

CONTRACT NO.
DRAWING NO.
LAP-CB1112
SCALE
AS SHOWN
SHEET NO.
3 OF 5

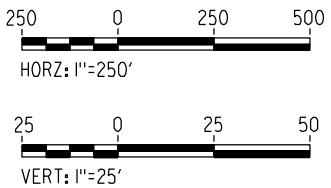
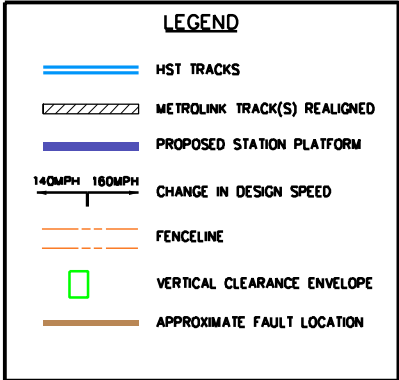
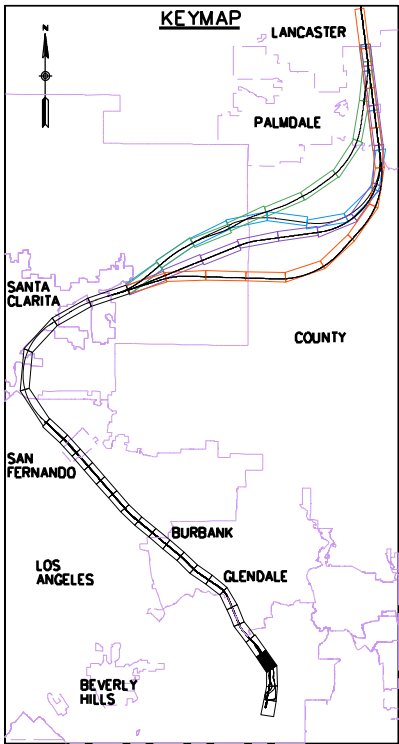
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PLAN



PROFILE



REV	DATE	BY	CHK	APP	DESCRIPTION
A	10/07/10	FC	JE	NC	UPDATED FOR SUPPLEMENTAL ALTERNATIVE ANALYSIS

DESIGNED BY J. LANGHAM
DRAWN BY J. REILLY
CHECKED BY N. CARSTAIRS
IN CHARGE R. HOLMQUIST
DATE 07/02/2010



Hatch Mott MacDonald, URS, & Arup
A HIGH-SPEED RAIL JOINT VENTURE

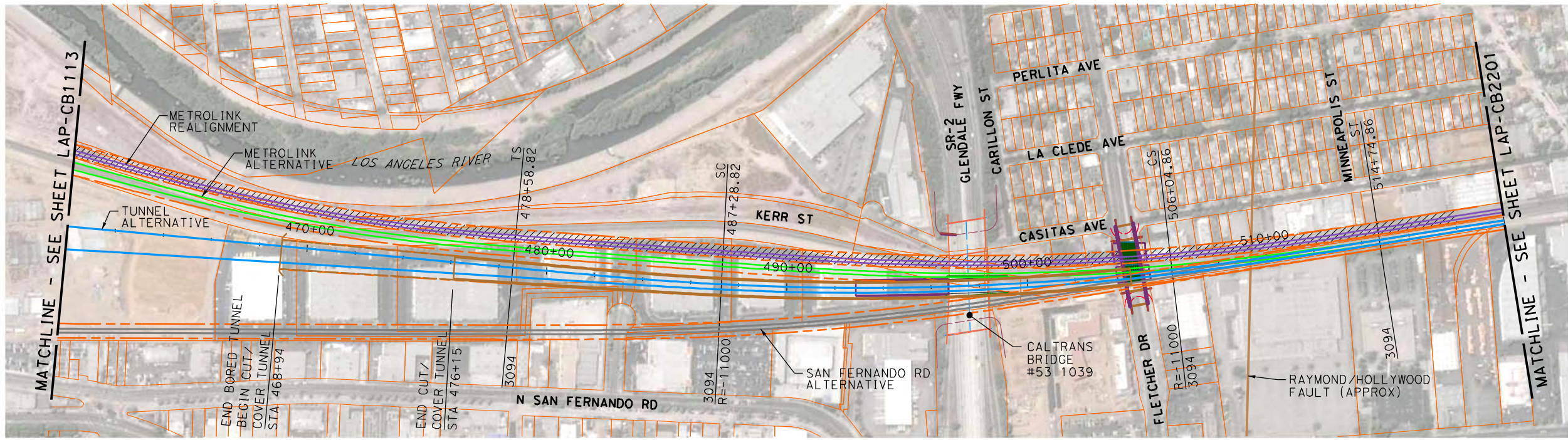


CALIFORNIA
HIGH-SPEED RAIL AUTHORITY

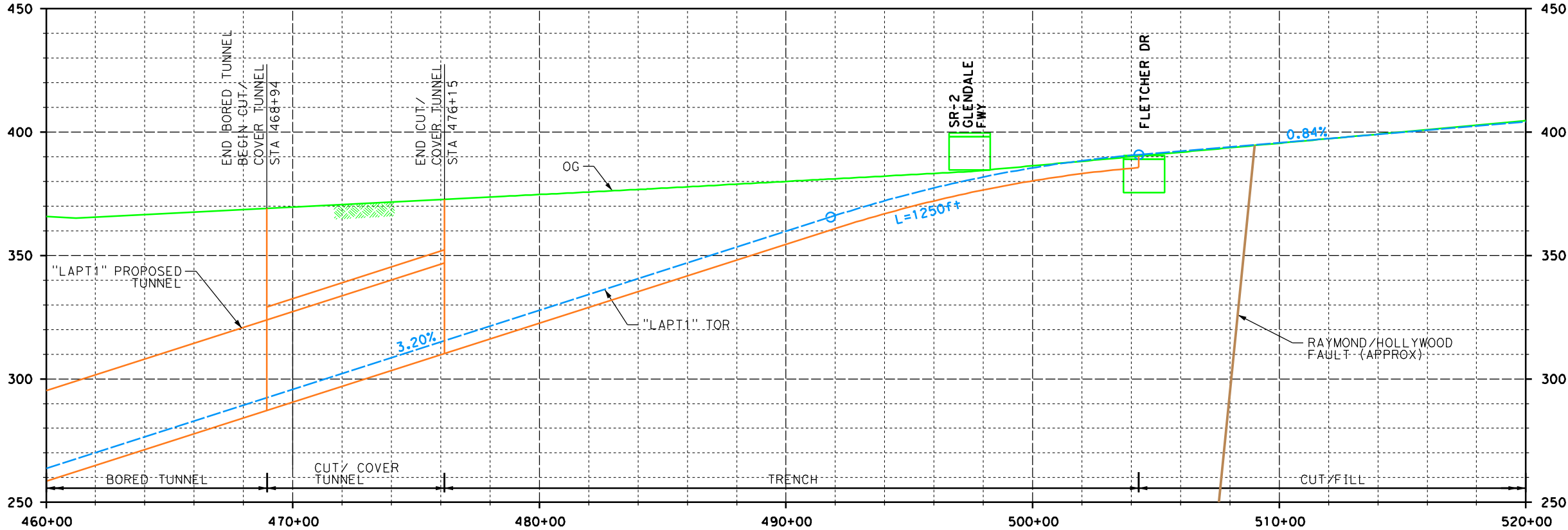
CALIFORNIA HIGH-SPEED TRAIN PROJECT
PALMDALE TO LOS ANGELES

ALTERNATIVES ANALYSIS
LAUS TO SR-2 - "LAPT1"
PLAN AND PROFILE
STA 410+00 TO 460+00

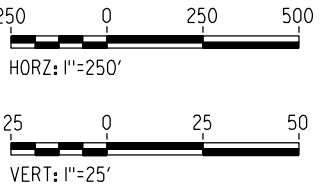
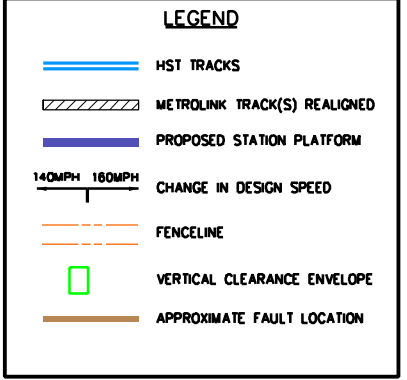
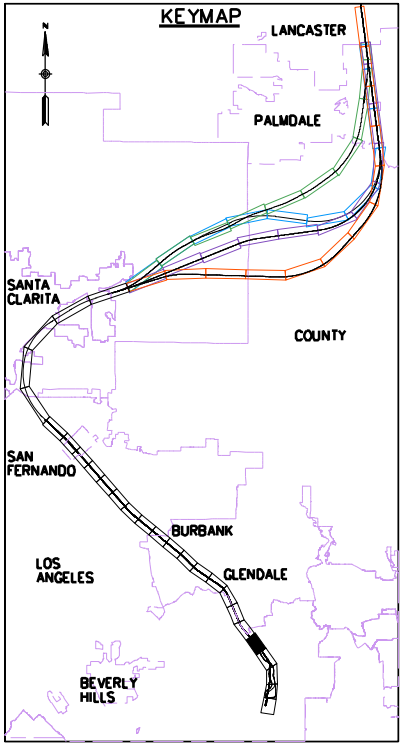
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SCALE AS SHOWN
SHEET NO. 4 OF 5



PLAN



PROFILE



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A	10/07/10	FC	JE	NC	UPDATED FOR SUPPLEMENTAL ALTERNATIVE ANALYSIS
REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY J. LANGHAM
DRAWN BY J. REILLY
CHECKED BY N. CARSTAIRS
IN CHARGE R. HOLMQUIST
DATE 07/02/2010



Hatch Mott MacDonald, URS, & Arup
A HIGH-SPEED RAIL JOINT VENTURE

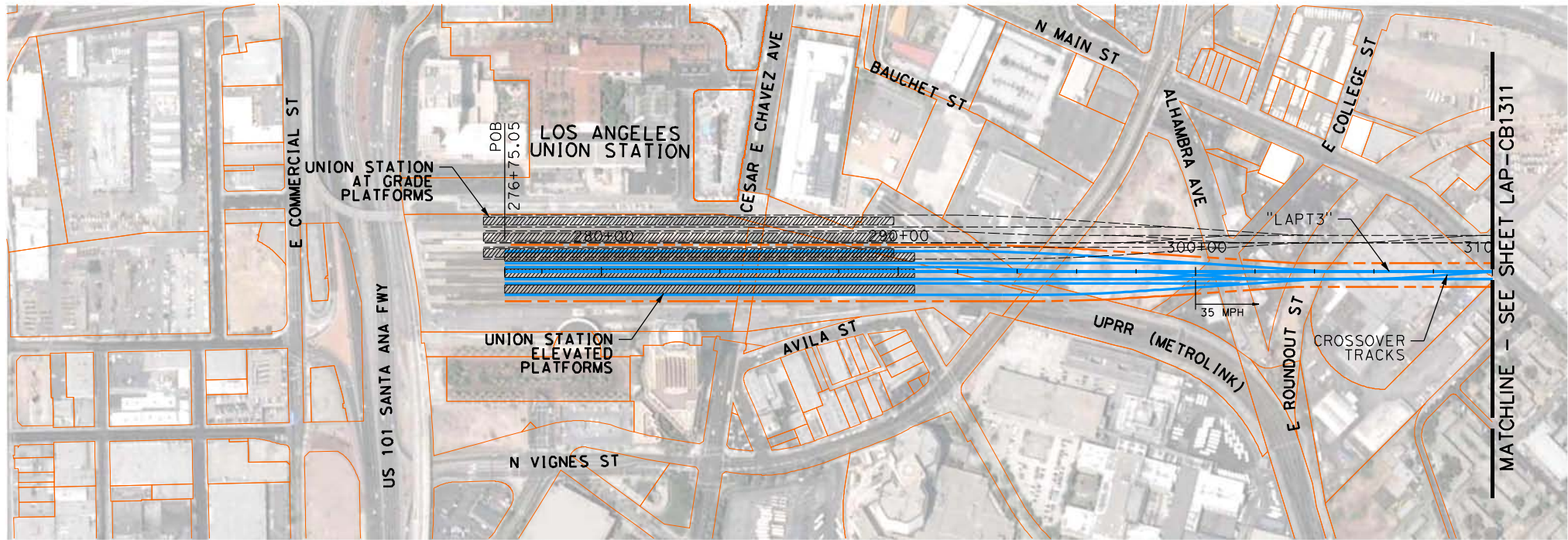


CALIFORNIA
HIGH-SPEED RAIL AUTHORITY

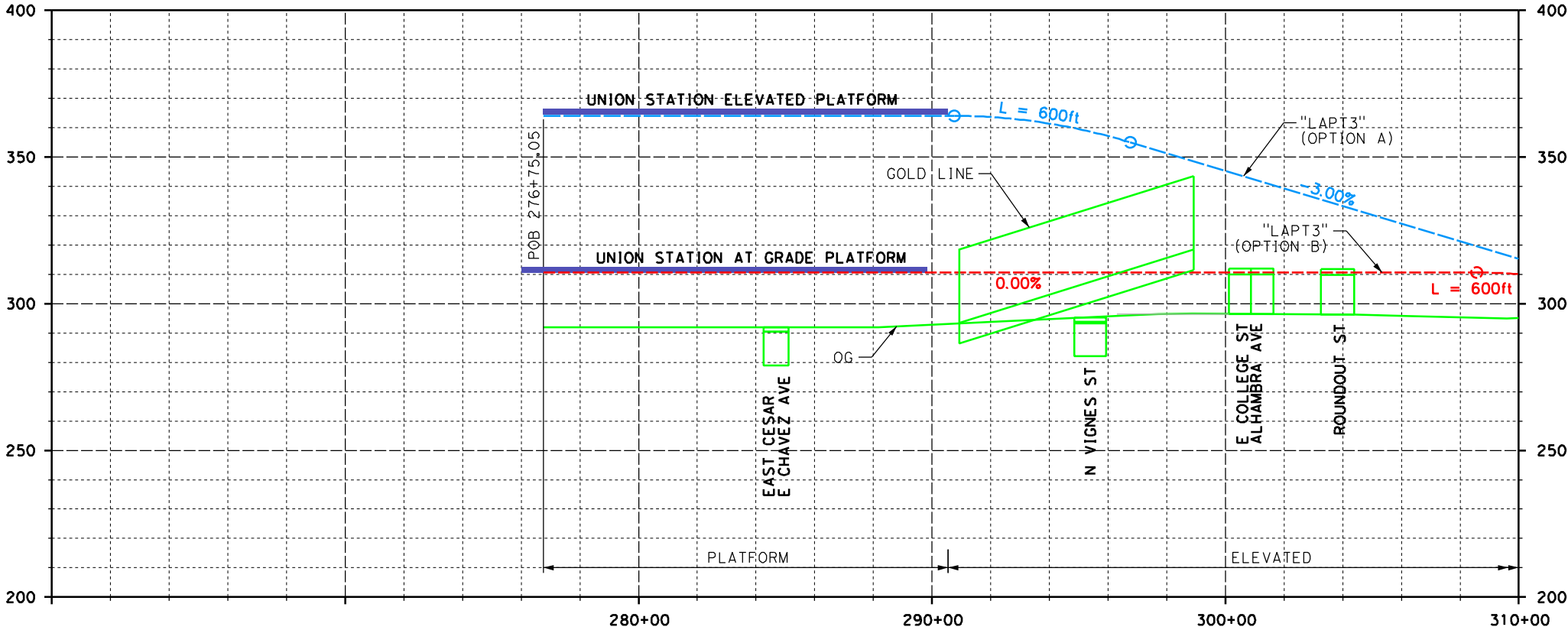
**CALIFORNIA HIGH-SPEED TRAIN PROJECT
PALMDALE TO LOS ANGELES**

ALTERNATIVES ANALYSIS
LAUS TO SR-2 - "LAPT1"
PLAN AND PROFILE
STA 460+00 TO 520+00

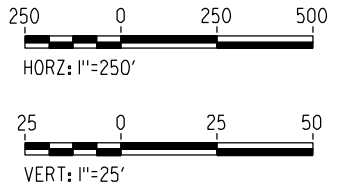
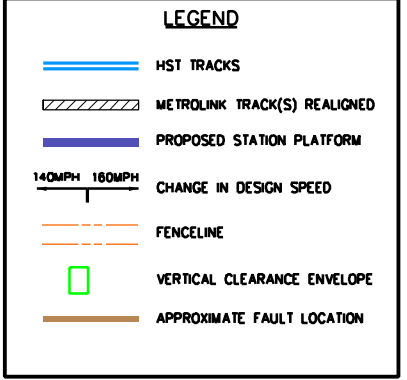
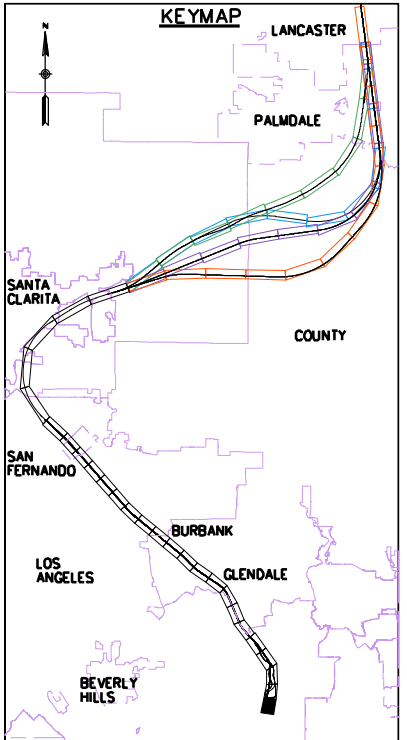
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SCALE AS SHOWN
SHEET NO. 5 OF 5



PLAN



PROFILE



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REV	DATE	BY	CHK	APP	DESCRIPTION
A	10/07/10	FC	JE	NC	UPDATED FOR SUPPLEMENTAL ALTERNATIVE ANALYSIS

DESIGNED BY J. LANGHAM
DRAWN BY B. BODIN
CHECKED BY N. CARSTAIRS
IN CHARGE R. HOLMQUIST
DATE 07/02/2010



Hatch Mott MacDonald, URS, & Arup
A HIGH-SPEED RAIL JOINT VENTURE



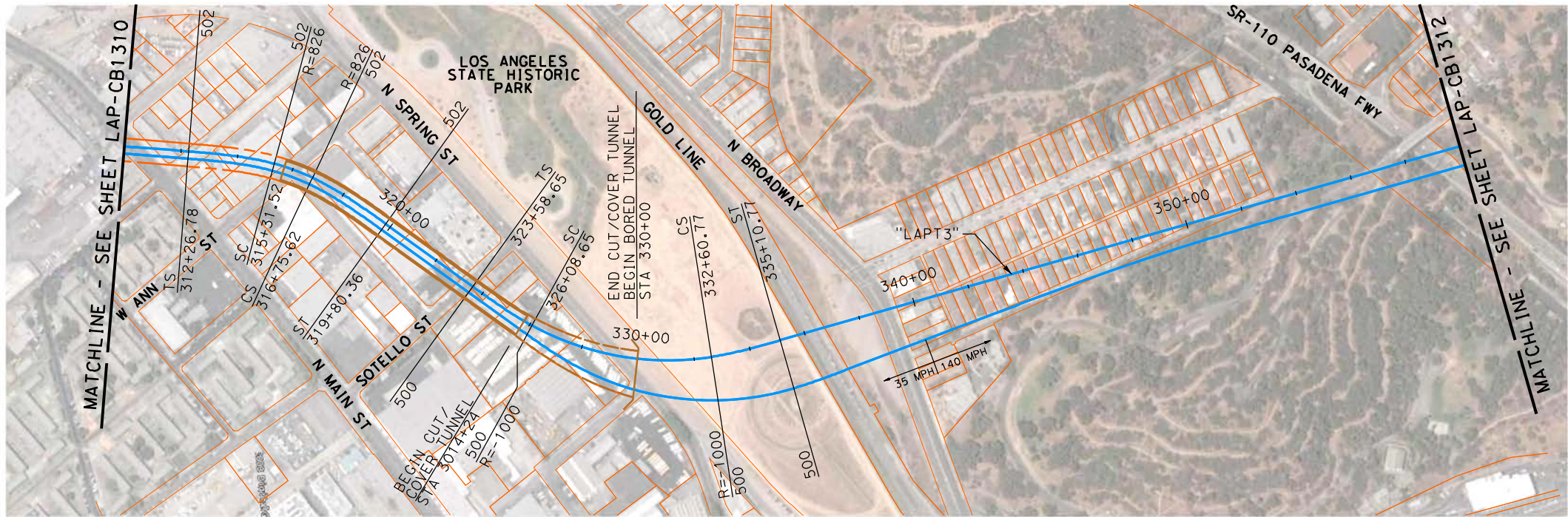
CALIFORNIA
HIGH-SPEED RAIL AUTHORITY

CALIFORNIA HIGH-SPEED TRAIN PROJECT
PALMDALE TO LOS ANGELES

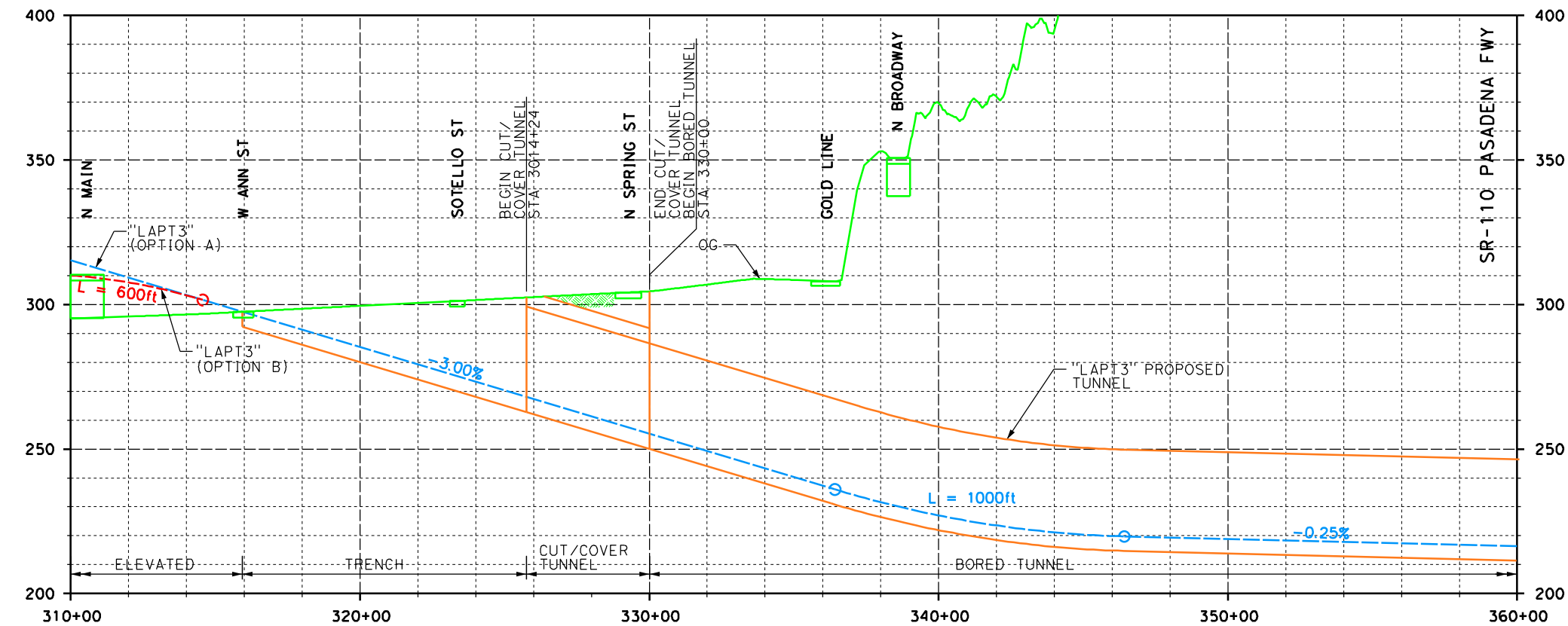
ALTERNATIVES ANALYSIS
LAUS TO SR-2 - "LAPT3"
PLAN AND PROFILE
STA 276+75 TO 310+00

CONTRACT NO.
DRAWING NO. LAP-CB1310
SCALE AS SHOWN
SHEET NO. 1 OF 5

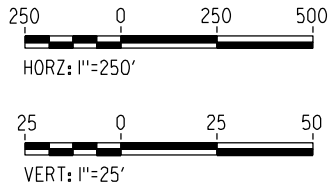
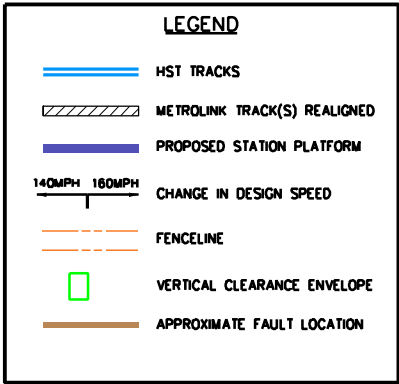
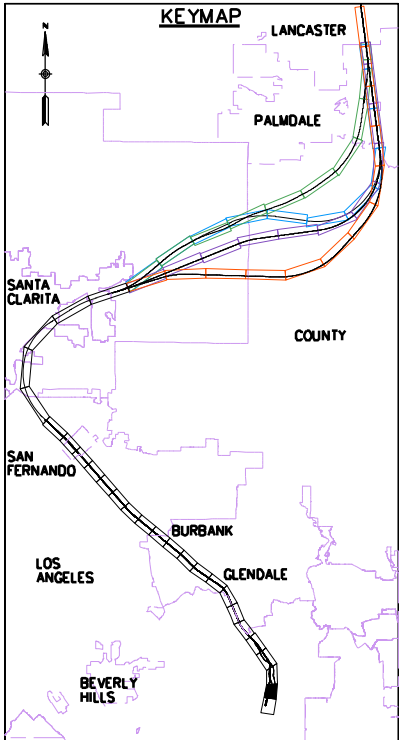
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PLAN



PROFILE



REV	DATE	BY	CHK	APP	DESCRIPTION
A	10/07/10	FC	JE	NC	UPDATED FOR SUPPLEMENTAL ALTERNATIVE ANALYSIS

DESIGNED BY J. LANGHAM
DRAWN BY J. REILLY
CHECKED BY N. CARSTAIRS
IN CHARGE R. HOLMQUIST
DATE 07/02/2010



Hatch Mott MacDonald, URS, & Arup
A HIGH-SPEED RAIL JOINT VENTURE

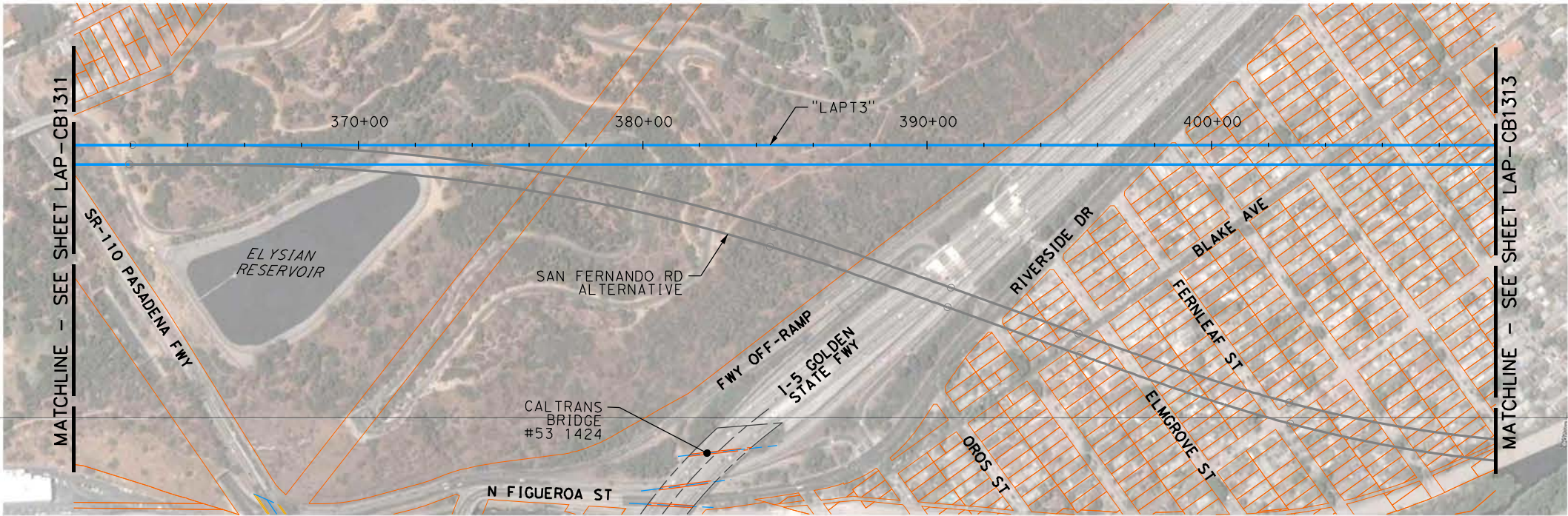


CALIFORNIA
HIGH-SPEED RAIL AUTHORITY

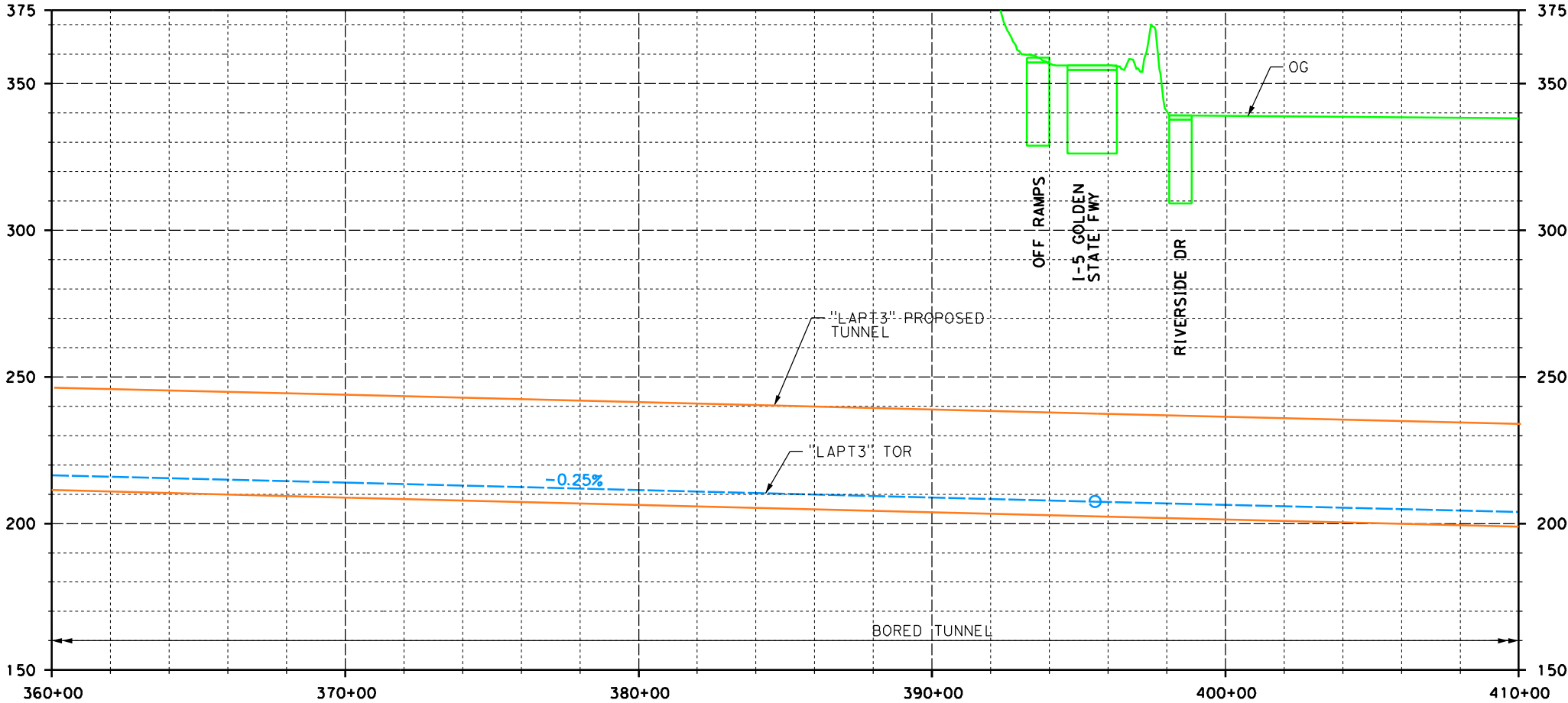
CALIFORNIA HIGH-SPEED TRAIN PROJECT
PALMDALE TO LOS ANGELES

ALTERNATIVES ANALYSIS
LAUS TO SR-2 - "LAPT3"
PLAN AND PROFILE
STA 310+00 TO 360+00

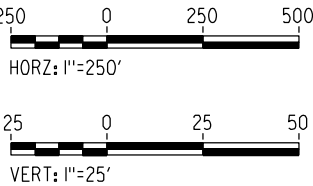
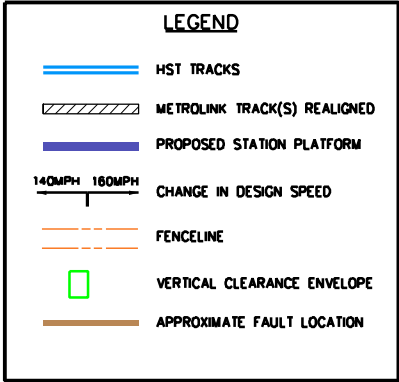
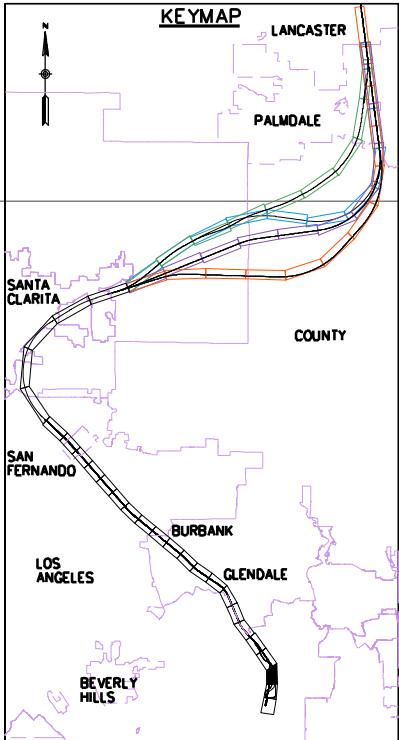
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DRAWING NO. LAP-CB1311
SCALE AS SHOWN
SHEET NO. 2 OF 5



PLAN



PROFILE



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REV	DATE	BY	CHK	APP	DESCRIPTION
A	10/07/10	FC	JE	NC	UPDATED FOR SUPPLEMENTAL ALTERNATIVE ANALYSIS

DESIGNED BY J. LANGHAM
DRAWN BY B. BODIN
CHECKED BY N. CARSTAIRS
IN CHARGE R. HOLMQUIST
DATE 07/02/2010



Hatch Mott MacDonald, URS, & Arup
A HIGH-SPEED RAIL JOINT VENTURE

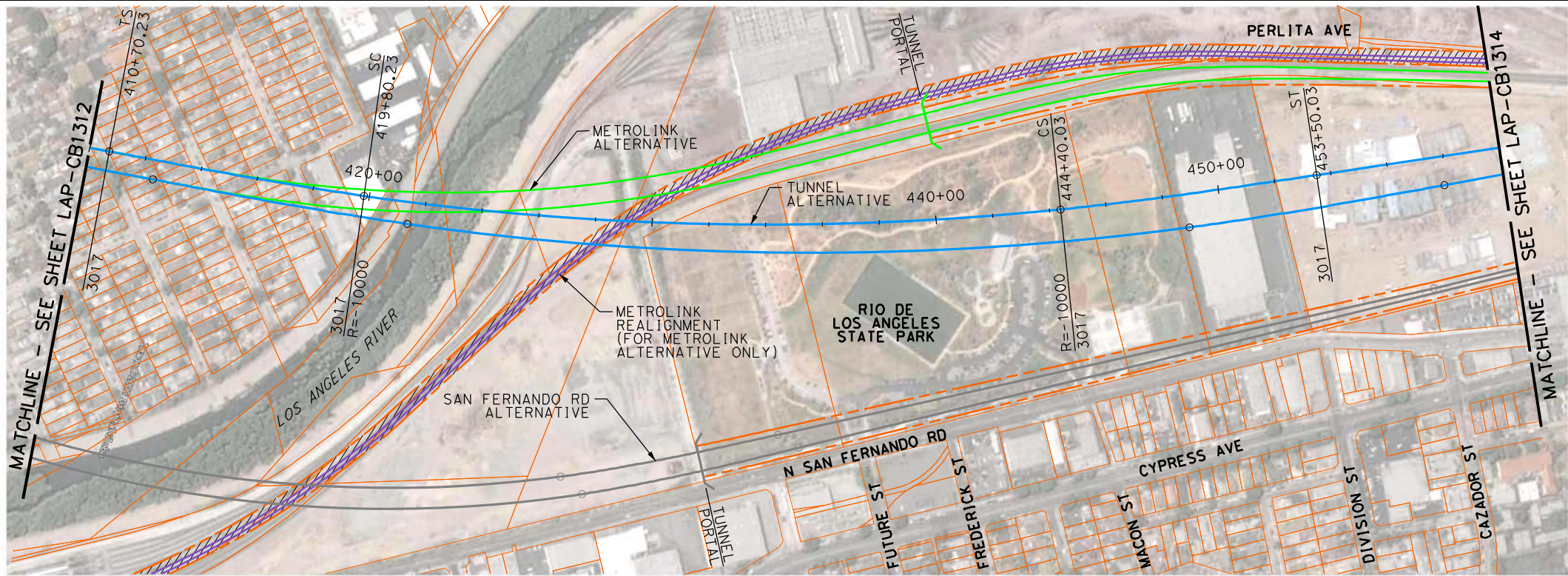


CALIFORNIA
HIGH-SPEED RAIL AUTHORITY

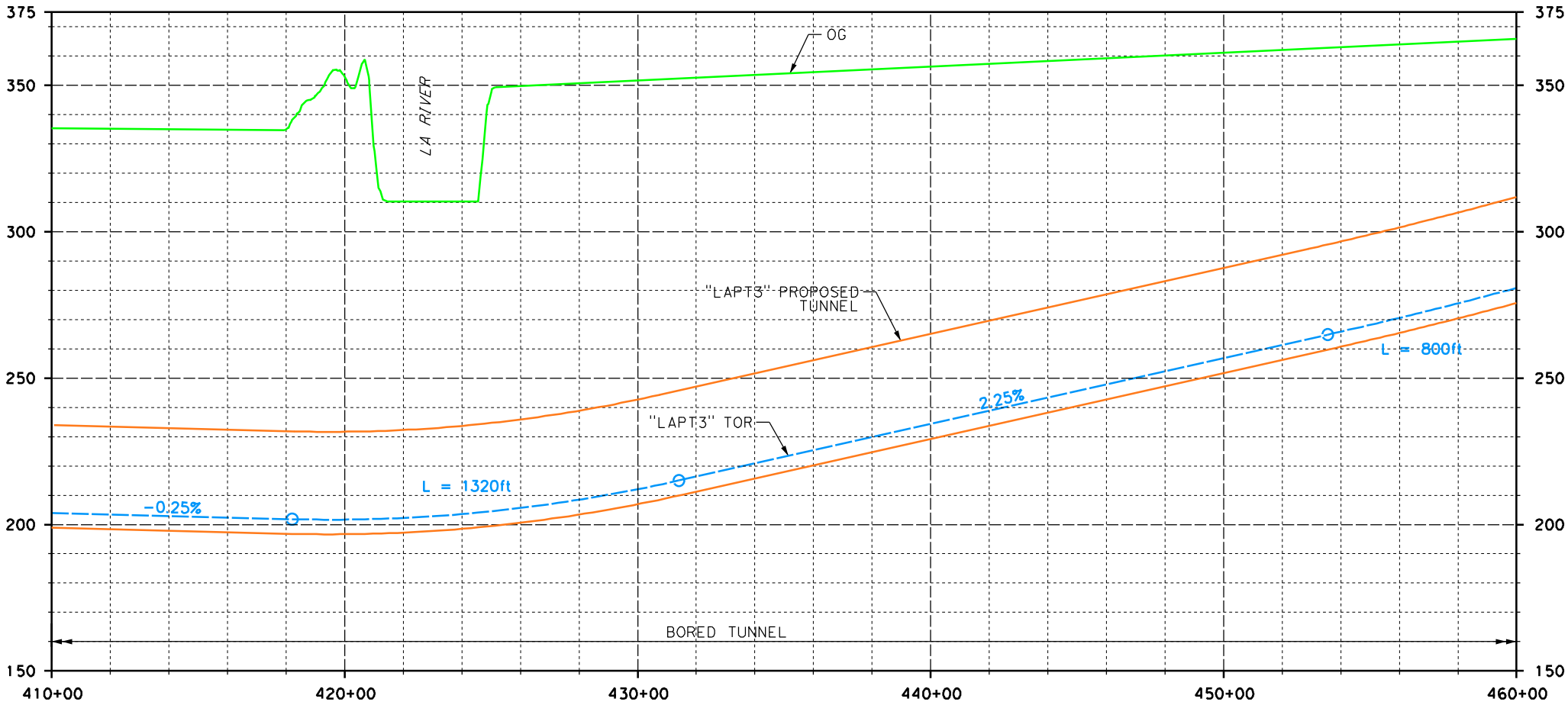
CALIFORNIA HIGH-SPEED TRAIN PROJECT
PALMDALE TO LOS ANGELES

ALTERNATIVES ANALYSIS
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PLAN AND PROFILE
STA 360+00 TO 410+00

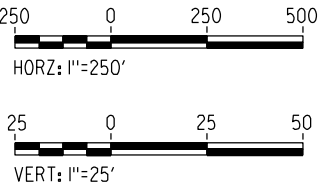
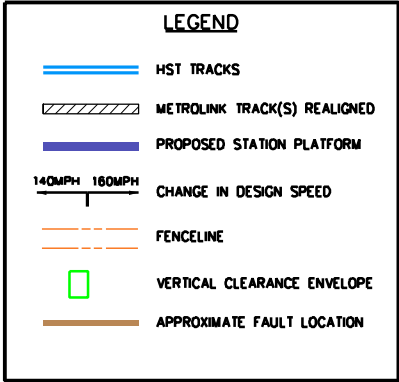
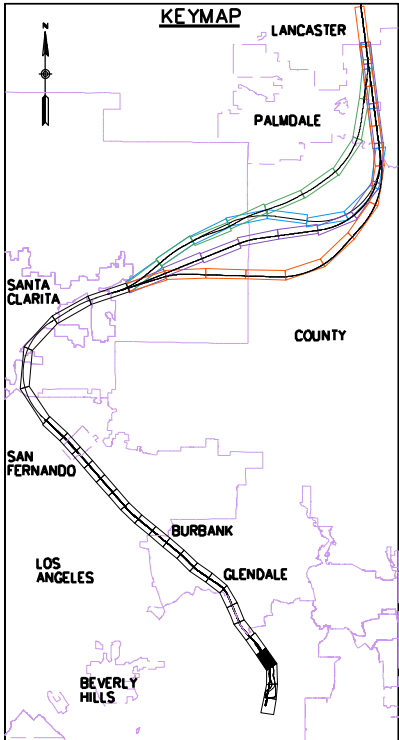
CONTRACT NO.
DRAWING NO. LAP-CB1312
SCALE AS SHOWN
SHEET NO. 3 OF 5



PLAN



PROFILE



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REV	DATE	BY	CHK	APP	DESCRIPTION
A	10/07/10	FC	JE	NC	UPDATED FOR SUPPLEMENTAL ALTERNATIVE ANALYSIS

DESIGNED BY J. LANGHAM
DRAWN BY D. ORIZA
CHECKED BY N. CARSTAIRS
IN CHARGE R. HOLMQUIST
DATE 07/02/2010



Hatch Mott MacDonald, URS, & Arup
A HIGH-SPEED RAIL JOINT VENTURE

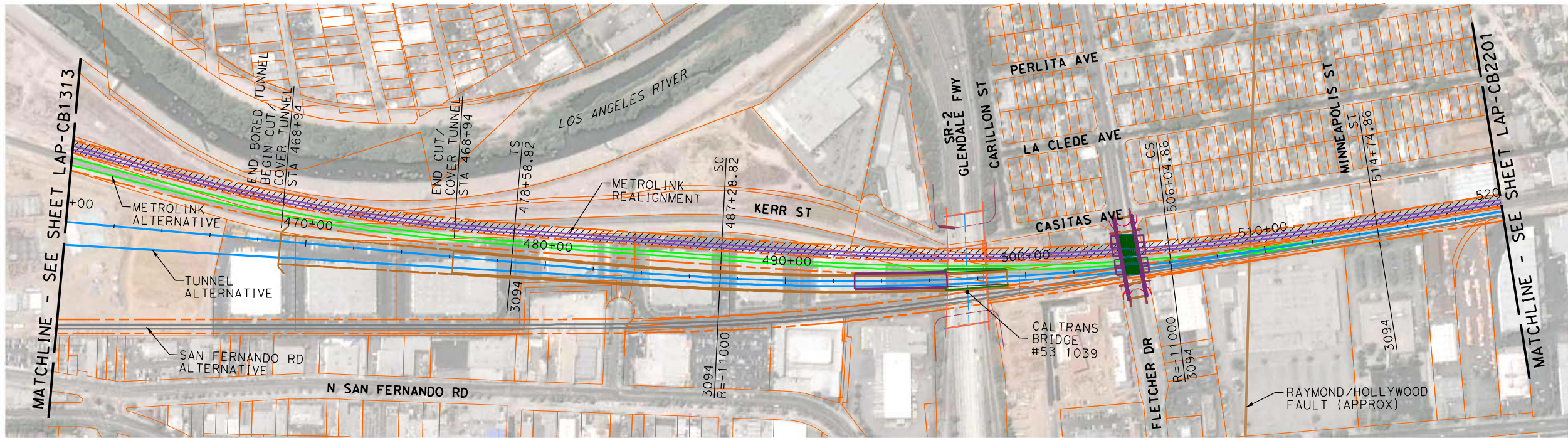


CALIFORNIA
HIGH-SPEED RAIL AUTHORITY

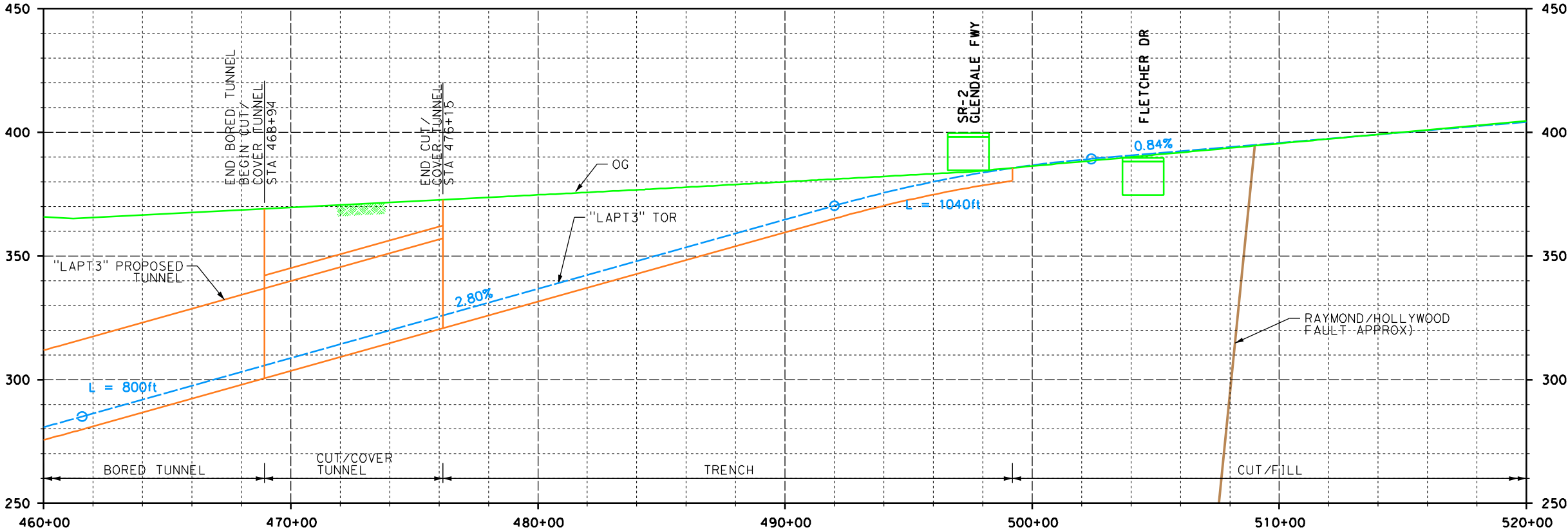
CALIFORNIA HIGH-SPEED TRAIN PROJECT
PALMDALE TO LOS ANGELES

ALTERNATIVES ANALYSIS
LAUS TO SR-2 - "LAPT3"
PLAN AND PROFILE
STA 410+00 TO 460+00

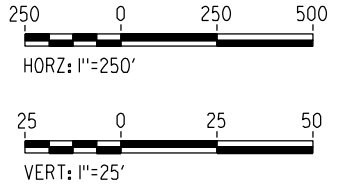
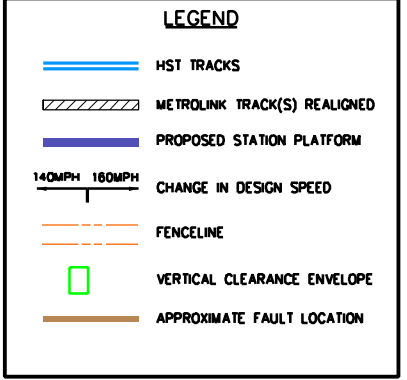
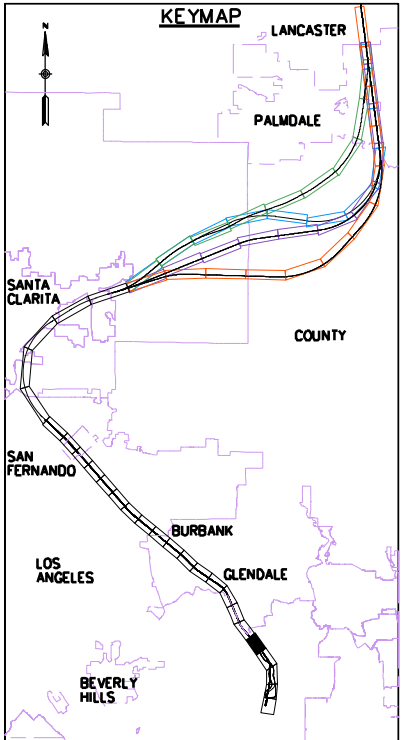
CONTRACT NO.
DRAWING NO. LAP-CB1313
SCALE AS SHOWN
SHEET NO. 4 OF 5



PLAN



PROFILE



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A	10/07/10	FC	JE	NC	UPDATED FOR SUPPLEMENTAL ALTERNATIVE ANALYSIS
REV	DATE	BY	CHK	APP	DESCRIPTION

DESIGNED BY
J. LANGHAM
DRAWN BY
J. REILLY
CHECKED BY
N. CARSTAIRS
IN CHARGE
R. HOLMQUIST
DATE
07/02/2010



Hatch Mott MacDonald, URS, & Arup
A HIGH-SPEED RAIL JOINT VENTURE

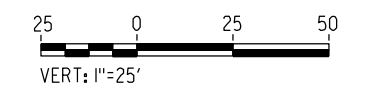
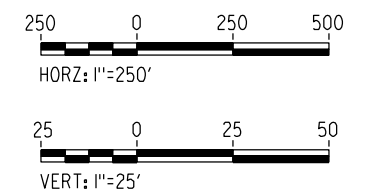
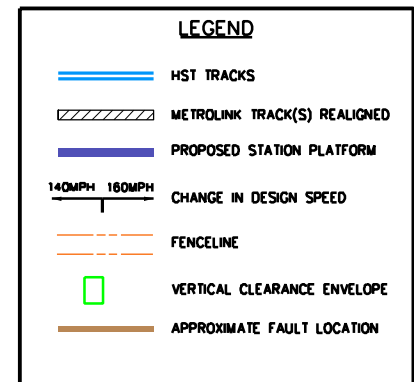
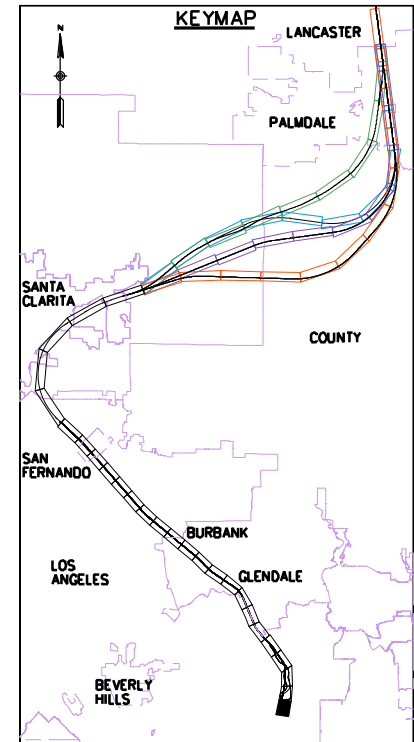
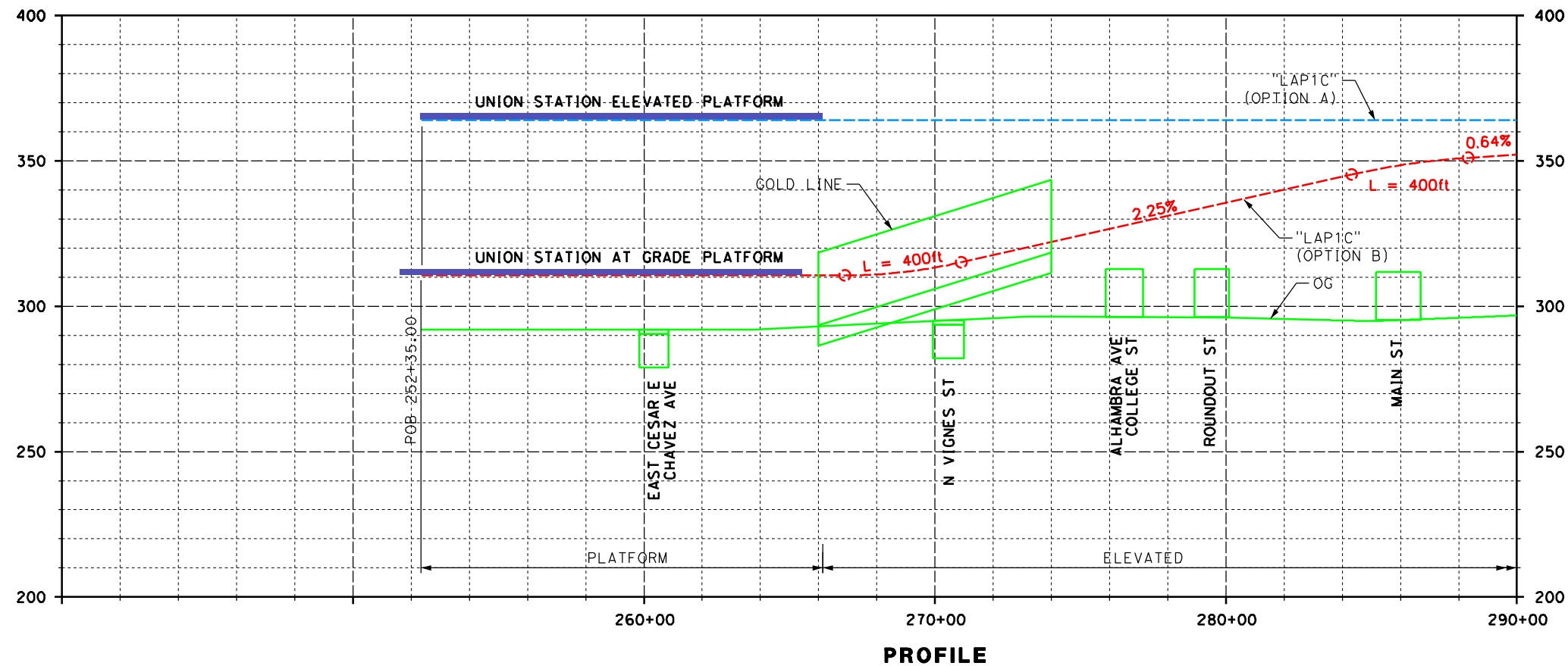
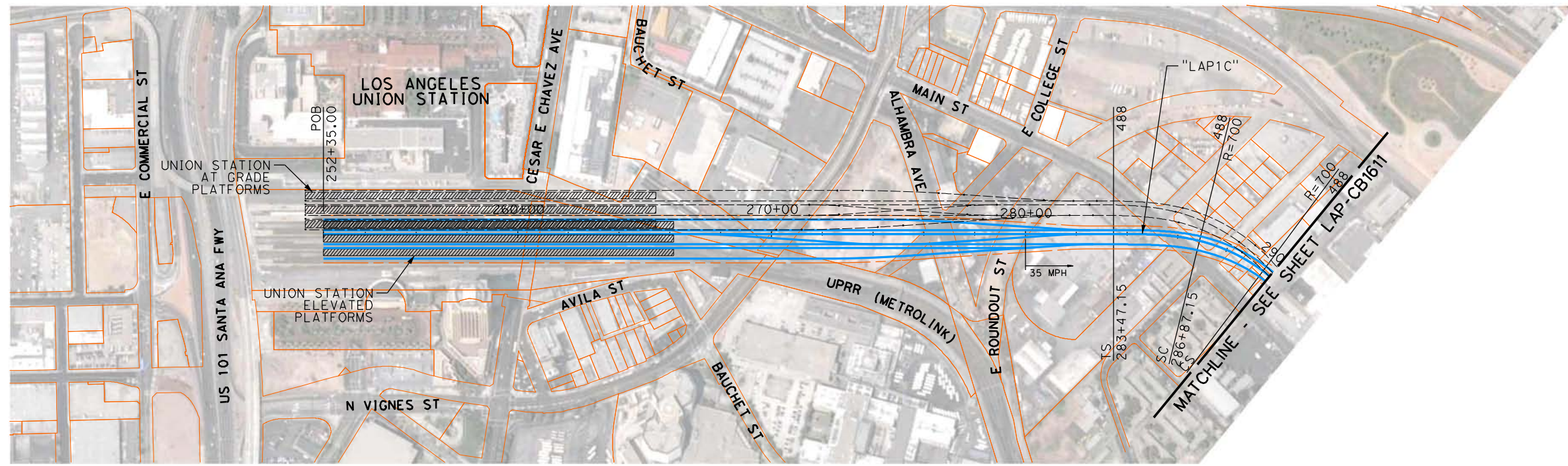


CALIFORNIA
HIGH-SPEED RAIL AUTHORITY

**CALIFORNIA HIGH-SPEED TRAIN PROJECT
PALMDALE TO LOS ANGELES**

ALTERNATIVES ANALYSIS
LAUS TO SR-2 - "LAPT3"
PLAN AND PROFILE
STA 460+00 TO 520+00

CONTRACT NO.
DRAWING NO. LAP-CB1314
SCALE AS SHOWN
SHEET NO. 5 OF 5



Erik.Tanaka 2/8/2011 2:19:17 PM c:\pwworking\hmm\erik.tanaka@arup.com\dms03875\LAP-CB1610-A.dgn

						DESIGNED BY J. LANGHAM
						DRAWN BY J. REILLY
						CHECKED BY N. CARSTAIRS
						IN CHARGE R. HOLMQUIST
A	10/07/10	FC	JE	NC	UPDATED FOR SUPPLEMENTAL ALTERNATIVE ANALYSIS	DATE 07/02/2010
REV	DATE	BY	CHK	APP	DESCRIPTION	



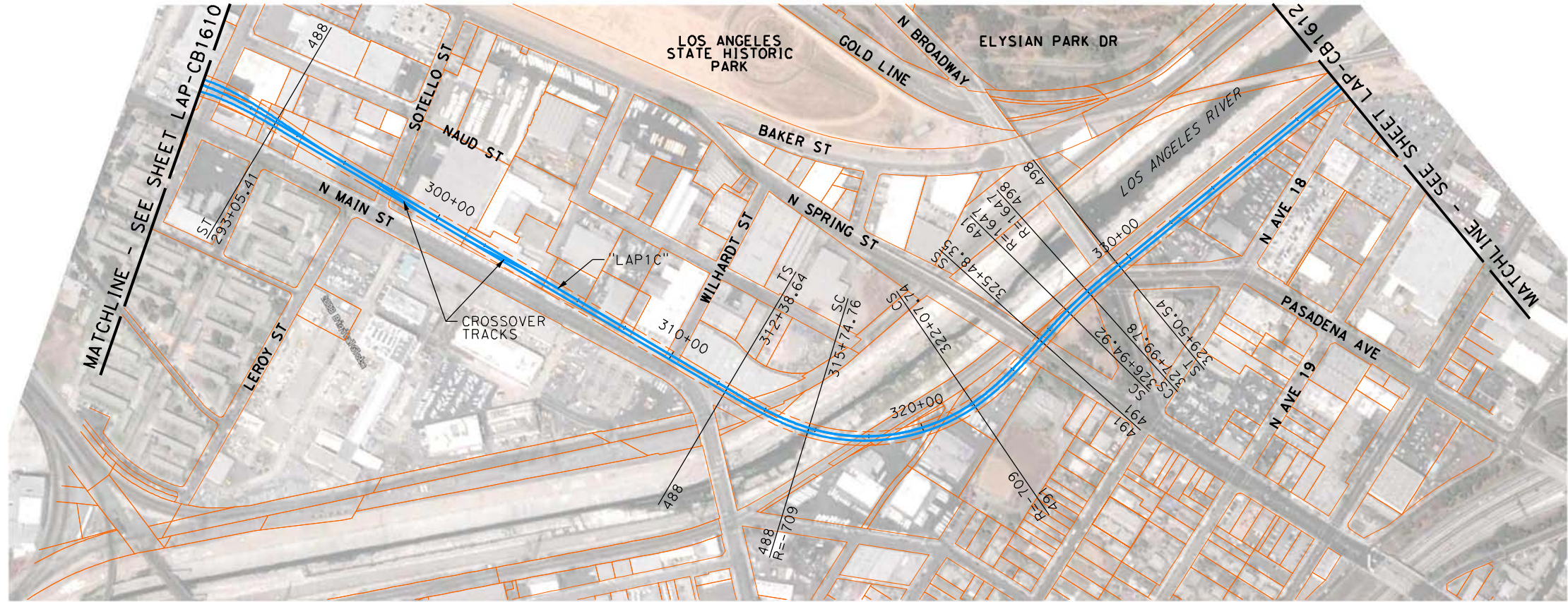
Hatch Mott MacDonald, URS, & Arup
A HIGH-SPEED RAIL JOINT VENTURE

**CALIFORNIA HIGH-SPEED TRAIN PROJECT
PALMDALE TO LOS ANGELES**

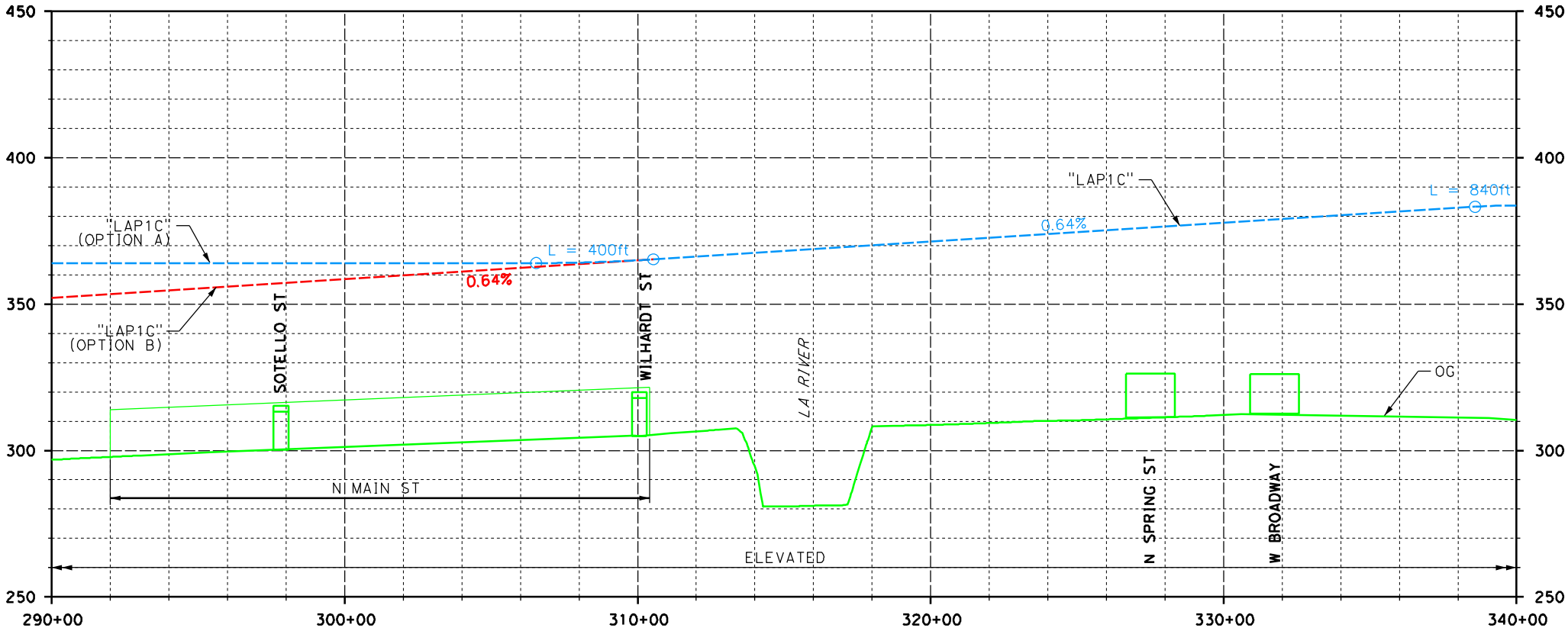
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LAUS TO SR-2 - "LAP1C"
PLAN AND PROFILE
STA 252+35 TO 290+00

CONTRACT NO.
DRAWING NO. LAP-CB1610
SCALE AS SHOWN
SHEET NO. 1 OF 5

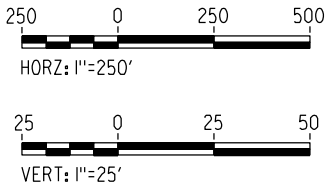
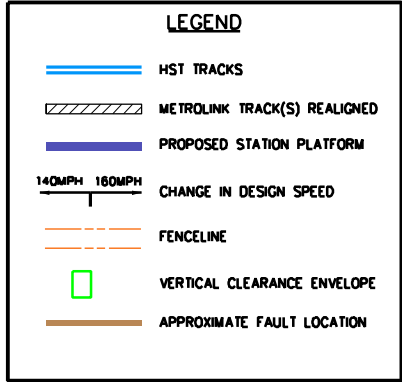
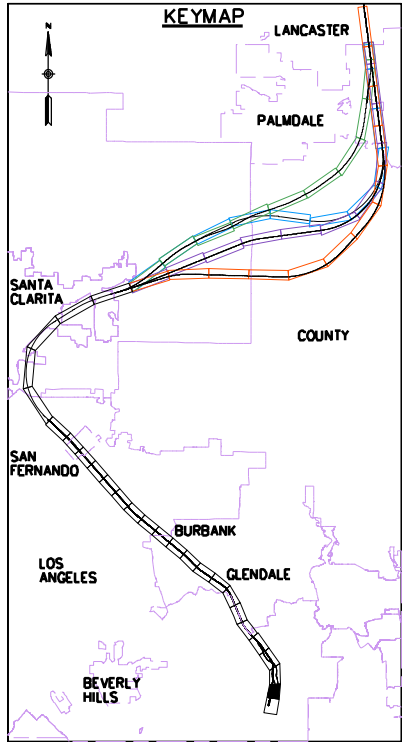
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PLAN



PROFILE



REV	DATE	BY	CHK	APP	DESCRIPTION
A	10/07/10	FC	JE	NC	UPDATED FOR SUPPLEMENTAL ALTERNATIVE ANALYSIS

DESIGNED BY J. LANGHAM
DRAWN BY J. REILLY
CHECKED BY N. CARSTAIRS
IN CHARGE R. HOLMQUIST
DATE 07/02/2010



Hatch Mott MacDonald, URS, & Arup
A HIGH-SPEED RAIL JOINT VENTURE



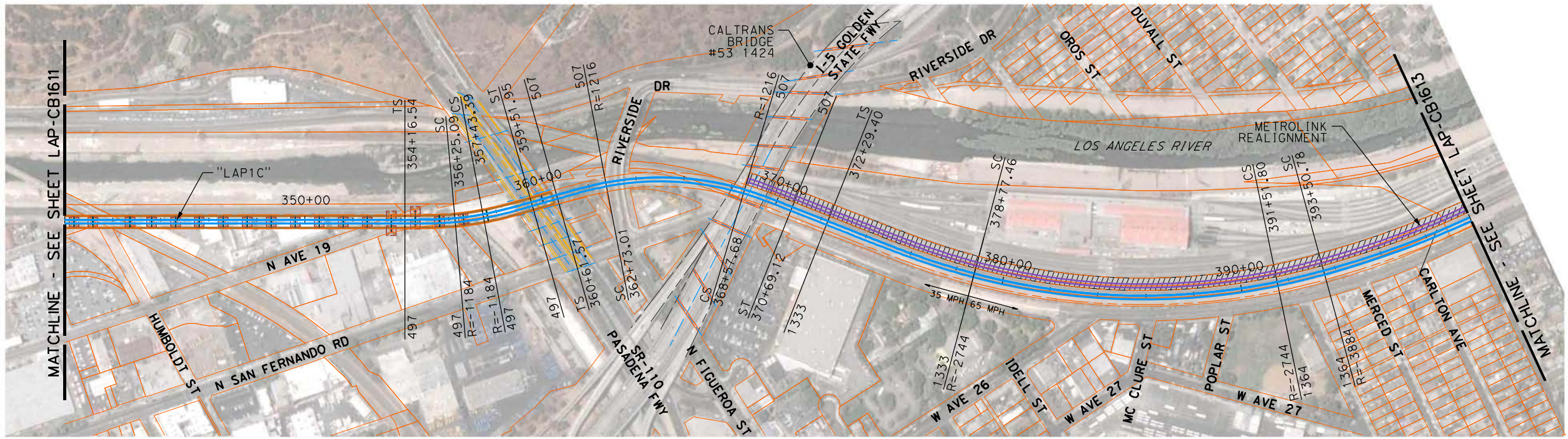
CALIFORNIA
HIGH-SPEED RAIL AUTHORITY

**CALIFORNIA HIGH-SPEED TRAIN PROJECT
PALMDALE TO LOS ANGELES**

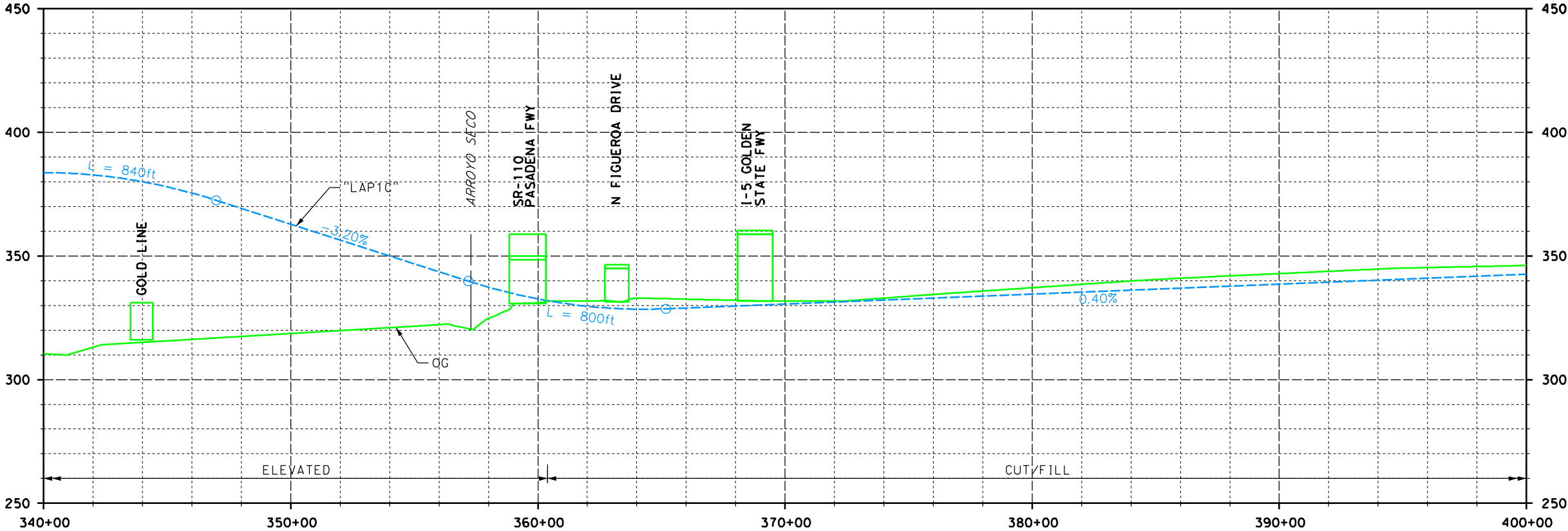
ALTERNATIVES ANALYSIS
LAUS TO SR-2 - "LAP1C"
PLAN AND PROFILE
STA 290+00 TO 340+00

CONTRACT NO.
DRAWING NO. LAP-CB1611
SCALE AS SHOWN
SHEET NO. 2 OF 5

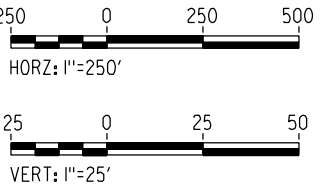
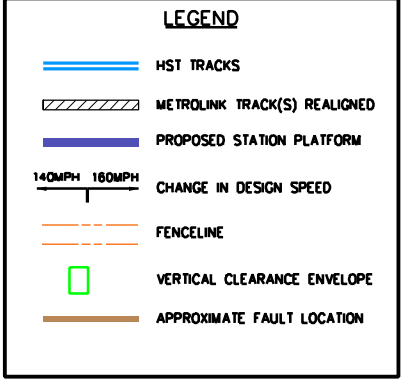
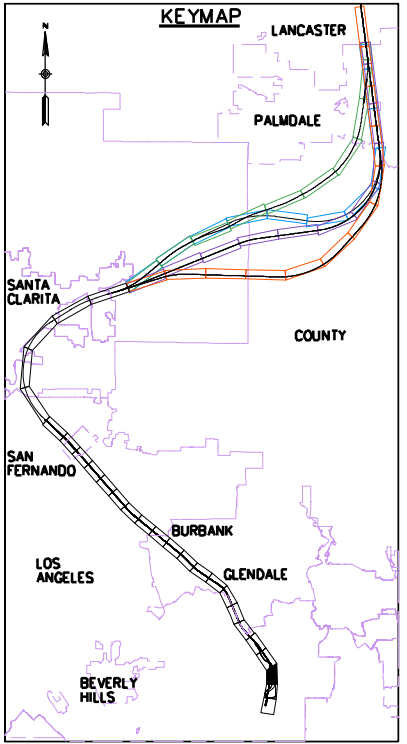
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PLAN



PROFILE



REV	DATE	BY	CHK	APP	DESCRIPTION
A	10/07/10	FC	JE	NC	UPDATED FOR SUPPLEMENTAL ALTERNATIVE ANALYSIS

DESIGNED BY
J. LANGHAM
DRAWN BY
J. REILLY
CHECKED BY
N. CARSTAIRS
IN CHARGE
R. HOLMQUIST
DATE
07/02/2010

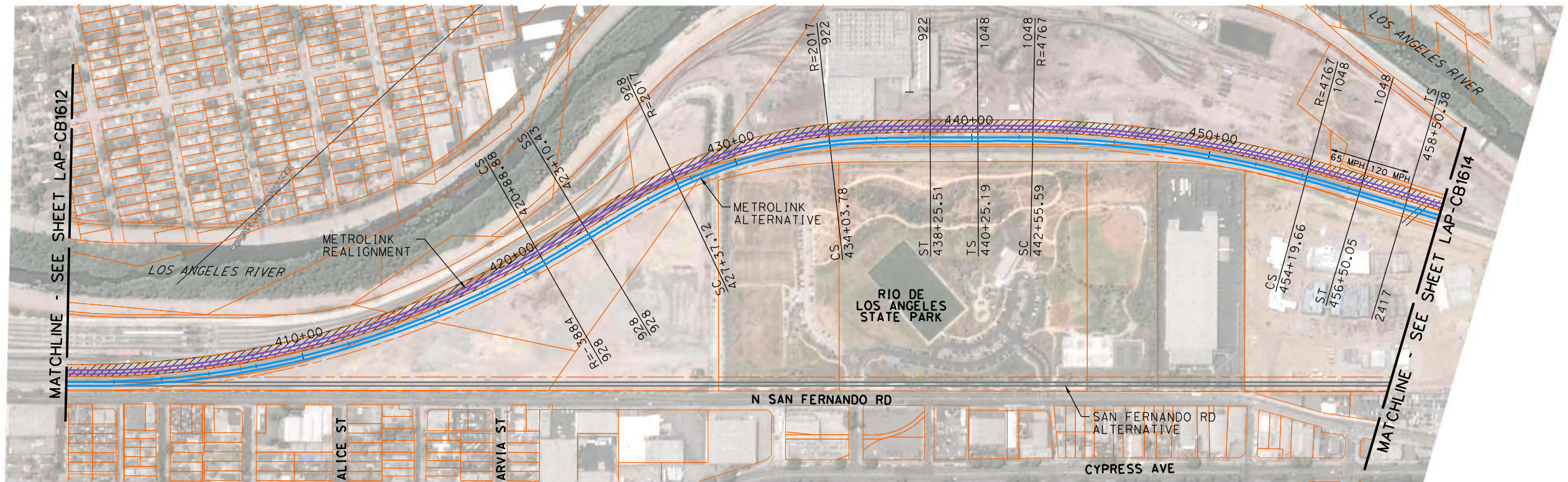


**CALIFORNIA HIGH-SPEED TRAIN PROJECT
PALMDALE TO LOS ANGELES**

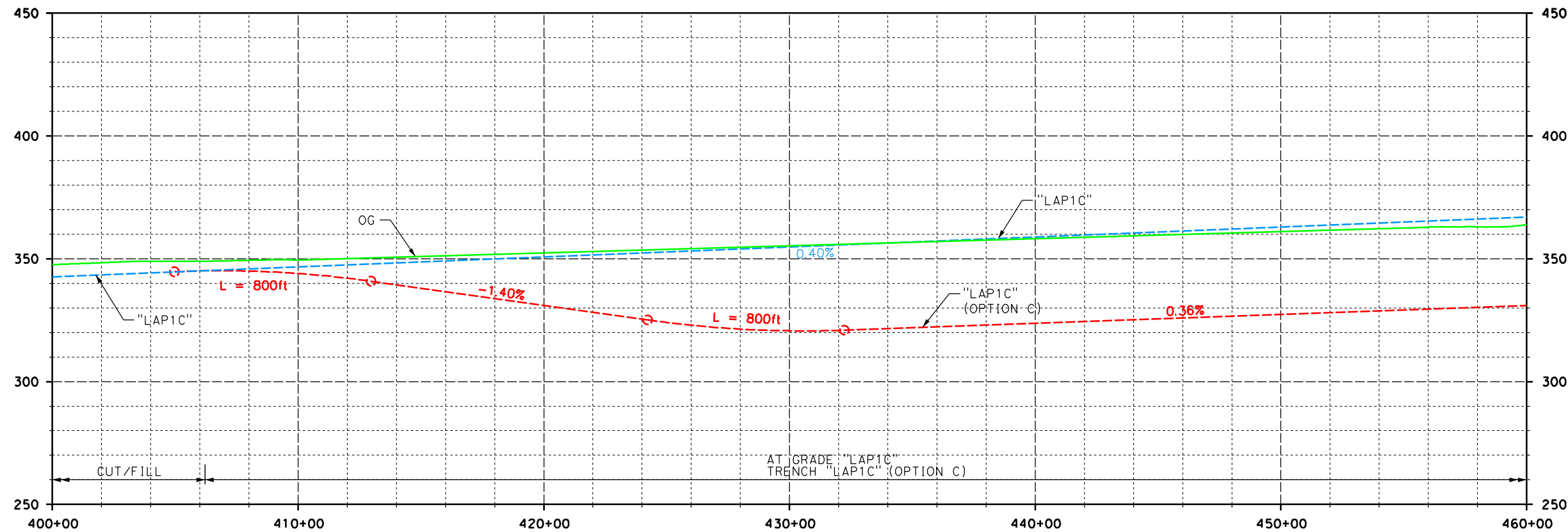
ALTERNATIVES ANALYSIS
LAUS TO SR-2 - "LAP1C"
PLAN AND PROFILE
STA 340+00 TO 400+00

CONTRACT NO.
DRAWING NO. LAP-CB1612
SCALE AS SHOWN
SHEET NO. 3 OF 5

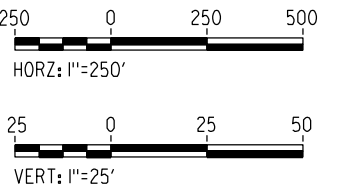
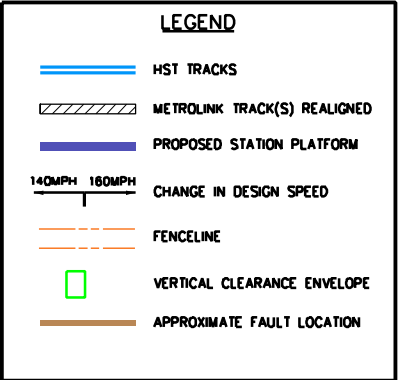
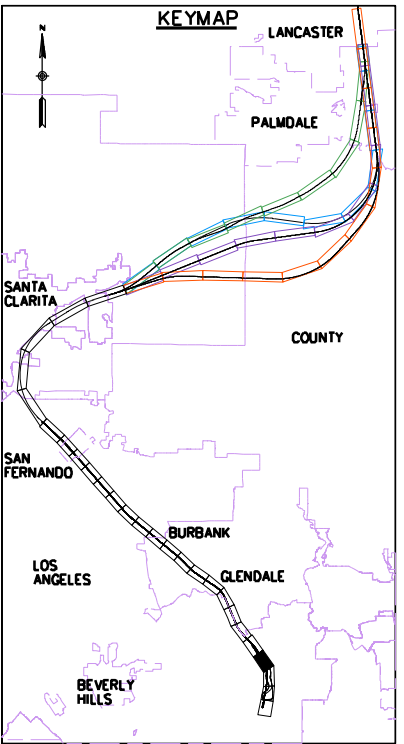
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PLAN



PROFILE



REV	DATE	BY	CHK	APP	DESCRIPTION
A	10/07/10	FC	JE	NC	UPDATED FOR SUPPLEMENTAL ALTERNATIVE ANALYSIS

DESIGNED BY J. LANGHAM
DRAWN BY B. BODIN
CHECKED BY N. CARSTAIRS
IN CHARGE R. HOLMQUIST
DATE 07/02/2010



Hatch Mott MacDonald, URS, & Arup
A HIGH-SPEED RAIL JOINT VENTURE

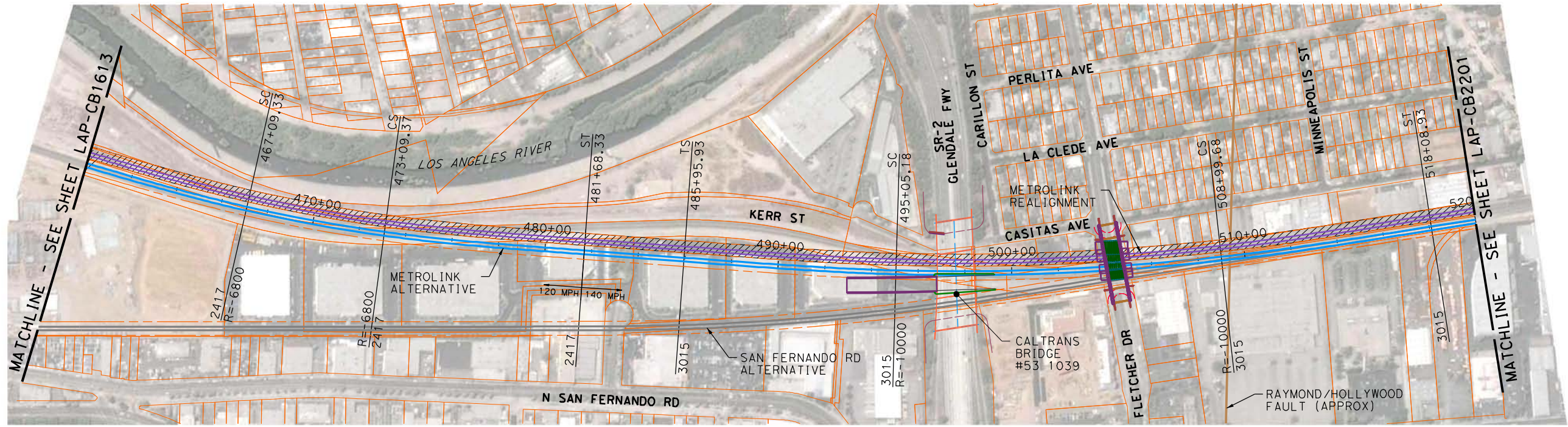


CALIFORNIA
HIGH-SPEED RAIL AUTHORITY

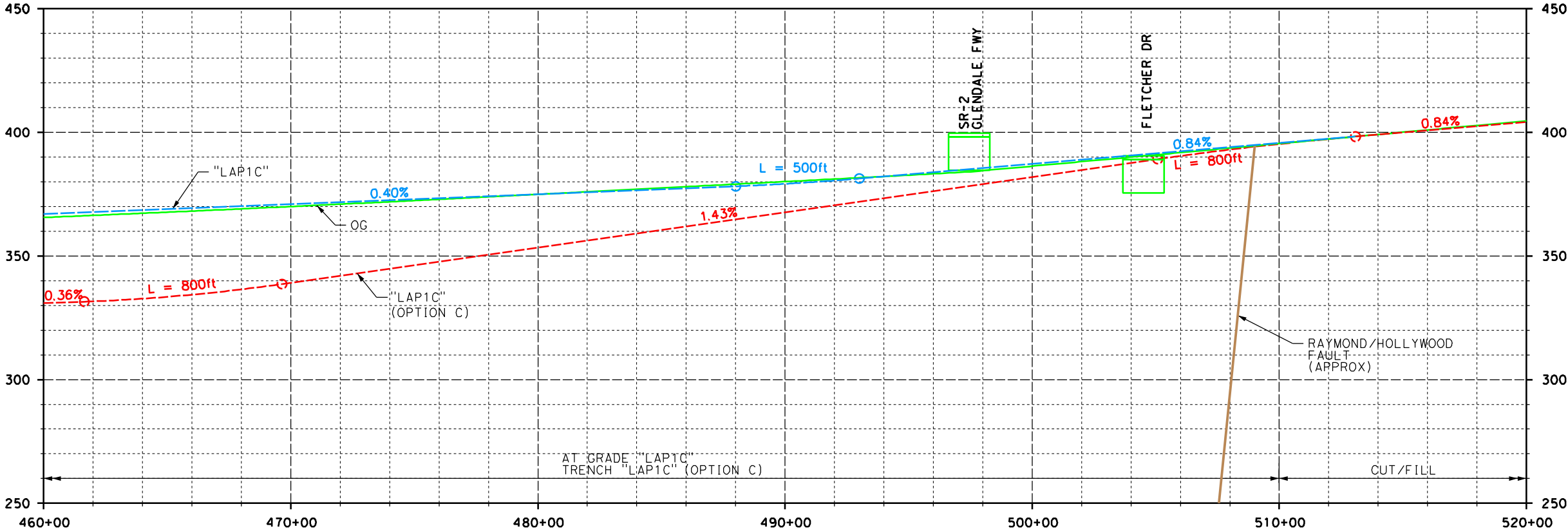
**CALIFORNIA HIGH-SPEED TRAIN PROJECT
PALMDALE TO LOS ANGELES**

ALTERNATIVES ANALYSIS
LAUS TO SR-2 - "LAP1C"
PLAN AND PROFILE
STA 400+00 TO 460+00

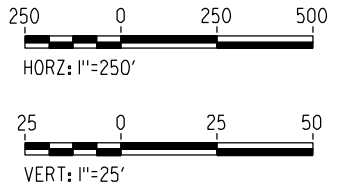
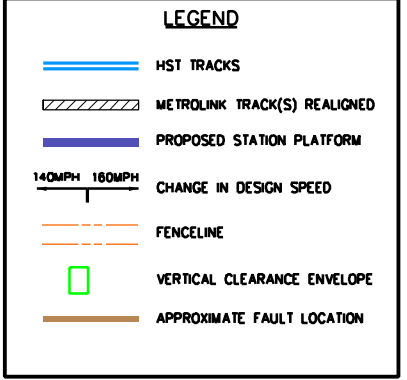
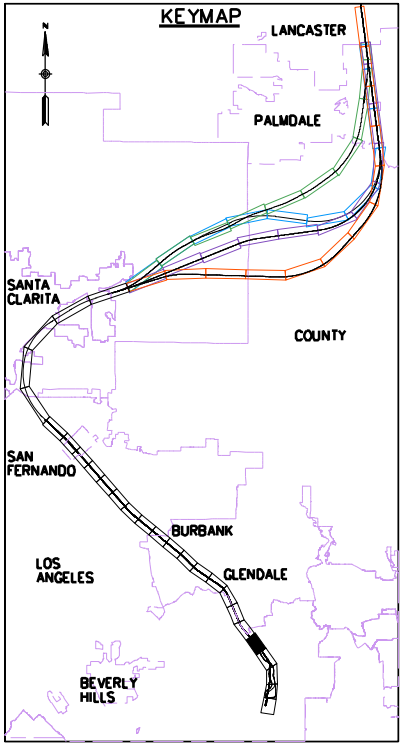
CONTRACT NO.
DRAWING NO. LAP-CB1613
SCALE AS SHOWN
SHEET NO. 4 OF 5



PLAN



PROFILE



2/8/2011 2:22:54 PM c:\pwworking\hmm\erik.tanaka\arup.com\dms03875\LAP-CB1614-A.dgn Erik.Tanaka

REV	DATE	BY	CHK	APP	DESCRIPTION
A	10/07/10	FC	JE	NC	UPDATED FOR SUPPLEMENTAL ALTERNATIVE ANALYSIS

DESIGNED BY
J. LANGHAM
DRAWN BY
J. REILLY
CHECKED BY
N. CARSTAIRS
IN CHARGE
R. HOLMQUIST
DATE
07/02/2010



**CALIFORNIA HIGH-SPEED TRAIN PROJECT
PALMDALE TO LOS ANGELES**
ALTERNATIVES ANALYSIS
LAUS TO SR-2 - "LAP1C"
PLAN AND PROFILE
STA 460+00 TO 520+00

CONTRACT NO.
DRAWING NO.
LAP-CB1614
SCALE
AS SHOWN
SHEET NO.
5 OF 5